MEDICAL JOURNAL OF WESTERN INDIA

ISSN NO.
0972-9798

VOLUME - 42, ISSUE NO. 1, FEBRUARY 2014

An official Publication of The Research Society
of B. J. Medical College &
Sassoon General Hospitals, Pune.
www.bjmc.org

With best compliments from

VANAZ

ENGINEERS LIMITED

Regd. Office & Works : 85 / 1, Paud Road, Pune 411 038. (INDIA)

TEL : 91 20 25405000, FAX : 91 20 25405151

E-MAIL : vanaz@vsnl.com

WEBSITE : www.vanaz.com

sancheti Research Center

The Leaders in Orthopaedic Research

Life is movement
movement is Life...

RATED AMONGST TOP 3 HOSPITALS IN INDIA

FOR ORTHOPAEDICS

Survey by
"THE WEEK" /
HANSA Research

First floor, Sancheti Hospital
16, Shivajinagar, Pune 411005, Maharashtra, India
Phone: 020-25511424 / 09890867334 Fax : 020-25511424
E-mail : siorresearch@gmail.com

Print ISSN: 0972-9798

Medical Journal of Western India

Official Publication of Research Society, BJ Government Medical College, Pune

EDITORIAL BOARD

Editor-in-Chief

S P Rao
Professor, Department of Preventive & Social Medicine
BJGMC,Pune

ASSISTANT EDITORS

Sneha Sathe
Associate Professor,
Department of Physiology,
BJGMC, Pune

Varsha Sarode
Associate Professor
Department of Physiology
BJGMC, Pune

Rohini Jagtap
Associate Professor
Department of Pharmacology
BJGMC, Pune

Kalpana Kulkarni
Associate Professor
Department of Pathology
BJGMC, Pune

National Editorial Advisory Board

Medical Journal of Western India

General Information

Medical Journal of western India, a peer reviewed journal, is now entering the fifth decade of published on behalf of the Research Society of B J Medical College, Pune. This journal is published bi-annually in January and July. The journal publishes information relating to all medical disciplines. The priority areas of publication are as follows. 1) Clinical and basic science research in all fields of medicine. 2) Articles related to prevention, management and treatment of diseases in developing countries. 3) Contributions are accepted in innovative health approaches, devices and operational research in health 4) Papers are also published related to dentistry, medical education, nursing, medical laboratory sciences, physiotherapy social medicine and other related medical subjects.

Papers are published in English. Submitted papers will be accepted after peer review. Manuscripts accepted for publication are copy edited for grammar, punctuation, print style, and format. Page proofs are sent to the corresponding author by e-mail only. The corresponding author is expected to return the corrected proofs within three days. The whole process of submission of the manuscript to final decision and sending and receiving proofs is completed online. To achieve wider dissemination of knowledge and information, the journal publishes articles can be accessed online at ***www.bjmcpune.org/medicine.htm*****.** The journal is following the **uniform requirements for Manuscripts Submitted to Biomedical Journals** available at **http://www.icmje.org/urm_main.html.**

Disclaimer

The information and opinions presented in the journal reflect the views of the authors and not of the journal or editorial board or the publisher. Publication does not constitute endorsement by the journal. Neither the Medical Journal of Western India nor its publishers nor anyone else involved in creating or producing the Medical Journal of Western India, assumes any liability or responsibility for the accuracy, completeness, or usefulness of any information provided in the Medical Journal of Western India, nor shall be liable for any direct, indirect, incidental, special, consequential or punitive damages arising out of the use of the Medical Journal of Western India. The Medical Journal of Western India, nor its printer, nor any other party involved in the preparation of the material contained in the Medical Journal of Western India represents or warrants that the information contained herein is in every respect accurate or complete, and they are not responsible for any errors or omissions or for the results obtained from the use of such material. Readers are encouraged to confirm the information contained herein with other sources.

Addresses
Editorial Office
Dr S P Rao
Editor-in-Chief
Medical Journal of Western India
Department of Preventive & Social Medicine
B J Government Medical College,
Pune-411001(MS) India
Phone: 91-20-26128000 Fax: 91-20-26126868
E-mail:editormjwi@gmail.com
Website: bjmcpune.org

Publisher
Dr U Divate
President
Research society
B J Government Medical College
Pune - 411001(MS) India
Phone: 91-20-26128000
Fax: 91-20-26126868

Printer
Rashmi Enterprises
C-42, DSK Chintamani, 514/517/519,
Shaniwarpeth, Pune 411030
Website: www.rashmi-enterprises.com
E-mail: director@rashmi-enterprises.com

Medical Journal of Western India

Official Publication of Research Society, BJ Government Medical College, Pune

Volume 42, issue 1, February 2014

CONTENTS

Short Communication

In Practice

Case Reports

Current view

MDGs - Maharashtra

The eight Millennium Development Goals (MDGs) were derived from the Millennium Declaration, adopted by all United Nations Member States in 2000. Through the Declaration, world leaders forged a commitment to combat poverty, hunger and disease, provide education to all children and equal opportunities to both women and men, protect the environment, establish a global partnership for development, and to achieve these goals by 2015. The UN Secretary General in 2011 said that "Between now and 2015, we must make sure that promises made become promises kept. The consequences of doing otherwise are profound: death, illnesses and despair, needless suffering, lost opportunities for millions upon millions of people". The MDGs provide a framework of time-bound goals and targets through which progress can be measured, using a baseline of 1990. There are 8 Targets & 18 Indicators directly related to health concerning MDGs.

Goal 1: Eradicate extreme poverty and hunger
Indicator 1. Prevalence of underweight children under five years of age
Indicator 2. Proportion of population below minimum level of dietary energy consumption
Goal 4: Reduce child mortality
Indicator 3: Under-five mortality rate
4: Infant mortality rate
5: Proportion of one-year-old children immunized against measles
Goal 5: Improve maternal health
Indicator 6: Maternal mortality ratio
7: Proportion of births attended by skilled health personnel
Goal 6: Combat HIV/AIDS, malaria and other diseases
Indicator 8: HIV prevalence among pregnant women aged 15-24 years
9: Condom use rate of the contraceptive prevalence rate
10. Ratio of school attendance of orphans to school attendance of non- orphans aged 10-14 years
11: Prevalence and death rates associated with malaria
12: Proportion of population in malaria-risk areas using effective malaria prevention and treatment measures
13. Prevalence and death rates associated with tuberculosis
14. Proportion of tuberculosis cases detected and cured under DOTS
Goal 7: Ensure environmental sustainability
Indicator 15: Proportion of population using solid fuels
16: Proportion of population with sustainable access to an improved water source, urban and rural
17: Proportion of population with access to improved sanitation, urban and rural
Goal 8: Develop global partnership for development
Indicator 18: Proportion of population with access to affordable essential drugs on sustainable basis.

The following chart presents an assessment of progress towards selected targets on the basis of information available as of June 2013. The latest available data for most indicators refer to 2011 to 2013.

June 2013 Present Position: South East Asia including India

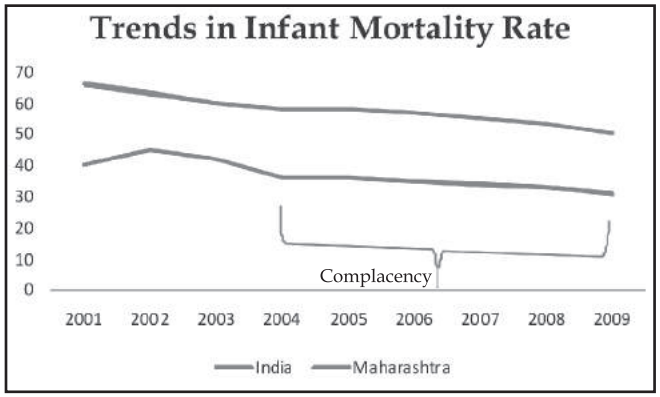
MDG Indicator	SE Asia including India	India	Maharashtra
Goal 1: Eradicate extreme poverty and Hunger			
Reduce extreme poverty by half	Moderate poverty.	**27.5%** ofIndia's Populationlives underthe national poverty line	Moderate Poverty
Productive and decent employment	Large deficit in decent work	**56%** of India's urban population lives inslums	Moderate deficit in decent work
Reduce hunger by half	Moderate Hunger	Almost **Half** of under-5 are stunted showing long periods of undernourishment	Moderate hunger
Goal 2: Achieve Universal Primary Education			
Universal Primary Schooling	High enrolment	**304** million Indians are Non-literate: Literate adults: 66%; Net enrolment in primary education: 89%; Drop-out rate from class I-X: 72.93%	High Enrolment
Goal 3: Promote Gender equality and empower women			
Equal girls enrolment in primary school	Parity	Sex ratio - National : 933 females forevery 1,000 males: Literate women in rural India: 47%	Parity
Women's share of paid employment	Medium share		Women workers constitute about 32 per cent of the Indian workforce (NSSO)
Women's equal representation in national parliament	Low representation	9,00,000 locally elected womenrepresentatives.10% of LokSabha members are women	<4.0%
Goal 4: Reduce Child Mortality			
Reduce mortality of under five year olds by two thirds	Low mortality. Proportion of under weight children is expected to come down to 33% vis-à-vis the target of 26% (52% in 1990)	Under-5mortalityrate is 72per 1,000live births: 2.38 million of the 10.8 million under-5 deaths Fully vaccinated children (12-23 months): 42%	25 per 1000 live births. However the prevalence of stunting under two years declined by 16 points while severe stunting reduced almost by half. RajmataJijbai Mission, the only special mission in India is relentlessly working to reduce malnutrition.
Goal 5: Improve Maternal Health			
Reduce maternal mortality by three quarters	Moderate Mortality	MaternalMortalityRatio254 per100,000live births 40.7% of deliveries were in hospitals orhealth centers	101 per 100,000live births. Maharashtra is one of the 3 states in India who have achieved MDG
Access to reproductive health	Moderate Access		

The above figures are based on Government reports and records. Taking into consideration of gross under-reporting prevailing in India, the interpretation of these figures needs to be cautioned. Looking at the Infant Mortality Rate, as an example, the state of Maharashtra showed excellent progress in the initial years of adopting MDGs.,

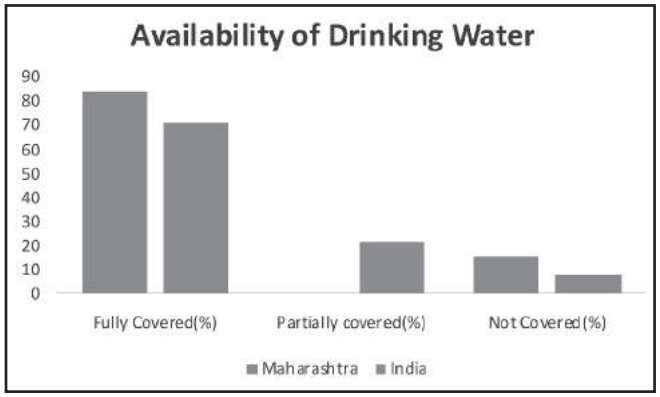
Infant Mortality Rate and the IMR GAP between India and Maharashtra: The progress in the reduction of IMR at National level is much appreciable compared to that in Maharashtra. The achievement in IMR reduction in Maharashtra reached a plateau since 2005. Comparatively, national figures start decreasing, showing the reduction in the gap. To achieve further reduction in IMR, Maharashtra should adopt methods targeting towards neonatal care and perinatal services. Unless attention (providing necessary infrastructure, skill & manpower) is paid to these two important areas, it would be difficult to attain further reduction in IMR. The optimistic projections of reduction in IMR to 13 by 2014 seem to be unattainable. Because reduction from 60 to 45 took 10 years; reduction from 45 to around 30 took another 10 years. From 30 to less than 15 will take another decade with same pace of health interventions. However, reductions to least levels are difficult to intervene and require better quality accessible and affordable health care services.

Year	India	Maharashtra	GAP
1990	80	60	20
1992	77	50	27
1994	72	45	27
1997	72	48	24
1999	70	48	22
2001	66	45	21
2002	63	45	18
2003	60	42	18
2004	58	36	22
2005	58	36	22
2006	57	35	22
2007	55	34	21
2008	53	33	20

Details of the trends in Infant Mortality Rate at National and Maharashtra state levels and the gap reduction from 1990-2010



The other important social target for MDG is availability of drinking water. The following figure shows the progress made so far towards availability of drinking water in Maharashtra and India. Maharashtra, a progressive state is yet to reach the target of providing drinking water facility to 100% population. Around 20% of population in Maharashtra are not covered with drinking water facility compared to 10% of the national average.



The social and health progress in Maharashtra indicate the unfinished work to be achieved at the earliest. Infant mortality Rate which is a sensitive indicate of reproductive health care though, nearing the Millennium Development goal, is still high.

Twenty percent of population is still not covered with safe drinking water. It is necessary to find ways and means to boost the health programs and provide basic amenities.

On a happier note, it worthy to appreciate the progress achieved towards MDG for Reproductive health in Maharashtra

The National Goals & MDGs by 2015 and status in Maharashtra(2013).

Infant Mortality Rate	25 (already achieved)
Maternal Mortality Rate	104(already achieved)
Total Fertility Rate	1.9 (already achieved)
Institutional deliveries	92% (100% at all corporation areas)

Some of the new initiates by Government of Maharashtra include JSY (Janani Suraksha Yojna) and JSSK (Janani Shishu Suraksha Karyakram); IMNCI; Home Based New Born Care (HBNC); Navjat Shishu Surkasha Karyakram (NSSK); Village Child Development Centre (VCDC); Breast feeding through IYCF by BPNI (Breast feeding Promotion Network of India); Breast Crawl initiate by DWCD, UNICEF, BPNI and RJMCHN(RajmataJijabai Child Health and Nutrition); HirkaniKaksha (HK); New Born Stabilization Units (NBSU); New Born Care Centres (NBCC); and Human Development Index Program (HDP). Community based interventions to improve child health include initiates like

Child Treatment Centers (CTCs); Nutrition Rehabilitation Centres (NRCs); Village child Development Centers(VCDCs) are expected to enhance and improve the quality of life in children. It is expected that effective implementation of these programmes in targeted high risk areas would be able to achieve further improvements in child survival. In order to integrate technology into health for improved communication and management new pilot projects like capturing of Real Time Data through voice messages using Android phone application, and integration of MCTS (Mother and Child tracking System) were introduced. Government of Maharashtra also launched the ambitious National Rashtriya Bal SwasthyaKaryakram (RBSK) recently indicating its commitment to improve child health and reduce infant and underfive mortality.

Sources

1. United Nations, based on data and estimates provided by: Food and Agriculture Organization of the United Nations; Inter-Parliamentary Union; International Labour Organization; International Telecommunication Union; UNAIDS; UNESCO; UN-Habitat; UNICEF; UN

Population Division; World Bank; World Health Organization – based on statistics available as of June 2013.

2 Health Status Maharashtra 2010. SHSRC, Pune

3 VikasKharage. Child Health Screening & Early Intervention Services :Initiatives in Maharashtra. India's call to Action Summit for Child Survival & Development 2013

Dr. S P Rao

Professor

Department of Preventive & Social Medicine

BJ Medical College, Pune

ORIGINAL ARTICLE

Prevalence Of Co-morbid Depression In Patients With Newly Detected, Controlled And Uncontrolled Diabetes Mellitus

Nikumbh SS, Mane D N ,Kashiva R

Department of Family Medicine, Noble Hospital, Hadapsar, Pune, Maharashtra

ABSTRACT

Background and objectives

Recognizing and treating depression in patients with diabetes may help avoid downstream adverse health-related outcomes.This study was aimed to find the co-morbid prevalence of depression in patients with T2DM.

Methodology

This prospective longitudinal cohort study was conducted from August 2011 to December 2012at Department of Medicine and Endocrinology, NobleHospital, Pune, Maharashtra. A total of 993 patients with type 2 diabetes were screened for the depression. The assessment of depression was done based the on QOL questionnaire.

Results

Of the 993 patients with type 2 diabetes mellitus, 150 (15.11%) had depression. Among them 117 (78%) were males and 33 (22%) were females. Most of the patients were aged between 41 to 50 years with mean age of 42.97 ± 4.13 years. Majority (80%) of the patients belonged to nuclear family. Most of the patients (33.33%) had newly detected diabetes with mean duration of diabetes as 4.05 ± 2.22 years and 53.33% had moderate depression with QOL questionnaire scores between four to five with mean depression score of 5.24 ± 1.40.

Conclusion and interpretation

The present study showed 15.11% comorbid prevalence of depression in patients with type 2 diabetes mellitus. All the patients (100%) with severe diabetes had severe depression scores (that is, QOL questionnaire scores 3 or less than three). Further, antidepressants as an adjuvant therapy and psychotherapy may be beneficial in treating patients with type 2 diabetes mellitus by lowering FBS, PPBS and HbA1c levels.

Keyword

Antidepressants; Depression; Diabetesmellitus.

Introduction

Diabetes mellitus is a chronic and potentially disabling disease which is reaching an epidemic proportion in many parts of the world. It is a major and growing threat to global public health. The biggest impact of the disease is on adults of working age; particularly in developing countries.

Thirty years ago, the prevalence of diabetes in India based on the multicentric survey[6] by Indian Council of Medical Research (ICMR) was around two percent in urban India and one percent in rural India. In just three decades, these prevalence rates have shot up to 12 to 16% in urban India and 3 to 8 percent in rural India, in adults over 20 years of age. This represents a 600 to 800% increase in prevalence rates of diabetes something which is unparallel in any Western nation. Indeed, India is now referred to as the "Diabetic Capital" of the world.

Even in the face of compelling evidence in favor of this theory, there are a very few available especially in India. Hence the present study was undertaken with the following aims and objectives.

Objectives

1. To study the co morbid prevalence of depression in patients with newly detected, controlled and uncontrolled Type 2 diabetes mellitus.
2. To assess the role of antidepressants as an adjuvant therapy to improve outcome of treatment for diabetes mellitus.
3. To assess the role of psychotherapy in improvement

Address for correspondence:
Nikumbh SS, Department of Family Medicine, Noble Hospital, Hadapsar, Pune, Maharashtra

of clinical profile.

Methodology

The present study was conducted at Department of Medicine and Endocrinology, Noble Hospital, Pune, Maharashtra from August 2011 to December 2012.

Study design

This is a prospective longitudinal cohort study.

Sample Size

A total of 150 adult patients with diabetes mellitus type 2 and depression were recruited in this study.

Selection Criteria

Inclusion criteria

- Patients with type 2 diabetes mellitus based on WHO criteria
- Both genders
- Patients aged 35 to 50 years.

Exclusion criteria

- Patients with comorbid conditions such as;
  - Hypertension
  - Dyslipidemia
  - Acute coronary syndrome
  - Ischaemic heart disease
  - Hypothyroidism
  - Other chronic disease
- Type 1 diabetes mellitus.

Ethical clearance

The study was approved by the Institutional Ethics Committee, Noble Hospital, Pune, Maharashtra.

Informed Consent

Patients fulfilling the selection criteria were explained about the nature of the study and a written informed consent was obtained.

Investigations

Further the selected patients underwent the following investigations;

1. Complete blood count (CBC).
2. Liver function tests
3. Renal function tests
4. Fundoscopy
5. Urine routine and microscopy
6. HbA1c
7. Fasting blood sugar
8. Post prandial blood sugar

Sampling technique

The sample was achieved as follows.

- Patients with type 2 diabetes mellitus as per WHO criteria[2] attending the OPD, Department of Medicine and Endocrinology, or admitted to various medical wards at Noble Hospital, Pune, Maharashtra between September 2011 to December 2012 were screened for eligibility.
- The assessment of depression was done based the on Quality of Life (QOL) questionnaire.[90]
- The questionnaire included nine items and the responses were rated based on answers that is, the answer Yes was rated as '0' and no as '1'. The total maximum score was considered as 9.
- Based on the answers obtained through QOL questionnaire and total score these patients were categerised in three categories namely, mild, moderate and severe.
  - Mild – Score between 6-9
  - Moderate – Score between 4-6
  - Severe – Score between 1-4. Based on the HbA1c levels the patients were categerised into three cohorts of 50 each.
  - Newly detected cases with diabetes mellitus - HbA1c – 6.5 to 7.0
  - Moderately controlled diabetes mellitus - HbA1c – 7.1 to 8.5
  - Uncontrolled diabetes mellitus HbA1c – 8.5 to 14.0

Follow up

These patients were followed for the period six months at the following intervals with variability of ± 15 days.

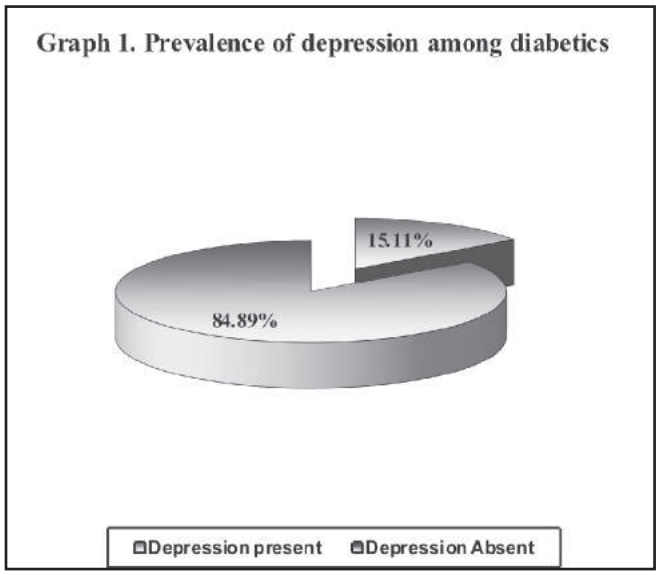
- First follow up – Seven days after discharge

- Second – One month
- Third – Three months
- Fourth - Six months
- Drop outs noted during study for follow up

Statistical analysis

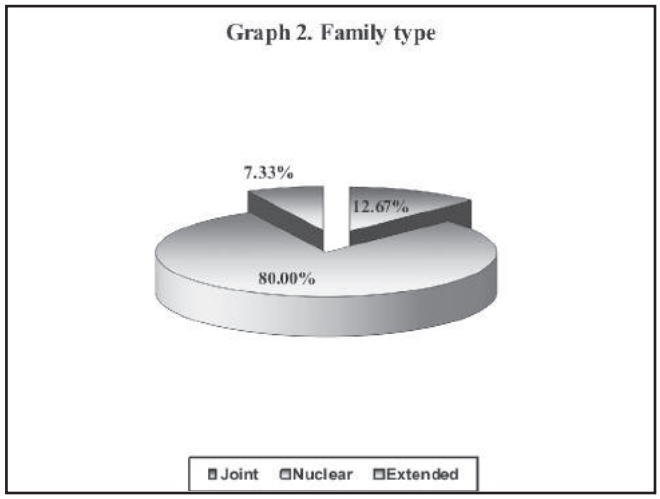
Categorical data was expressed in terms of rates, ratios and percentages. Continuous data was expressed as mean ± standard deviation (SD). Chi-square test was used to find the association between the categorical variables and student 't' test was used to determine the association between continuous variables. A 'p' value of less than or equal to 0.05 was considered as statistically significant.

Based on the QOL questionnaire a total of 993 patients with type 2 diabetes were screened for the depression and 150 patients with depression were included in the study. Of these, 15 patients did not turn up for the follow up and hence outcome data was available in 135 patients only.



Of these 150 (15.11%) had depression and 843 (84.89%) did not have depression

Table 2. Family type



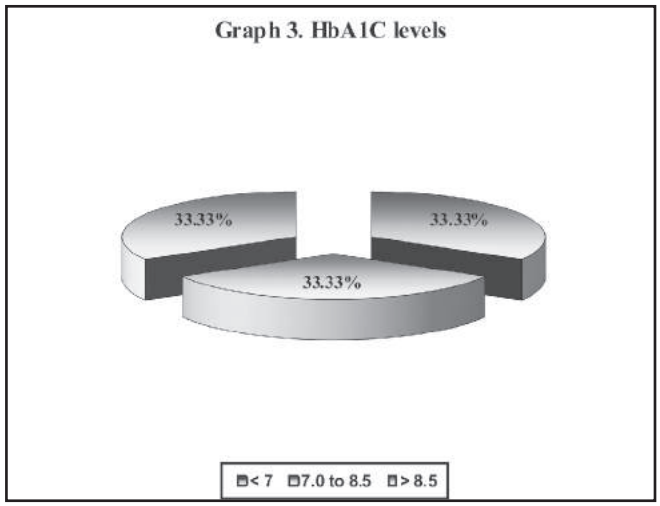
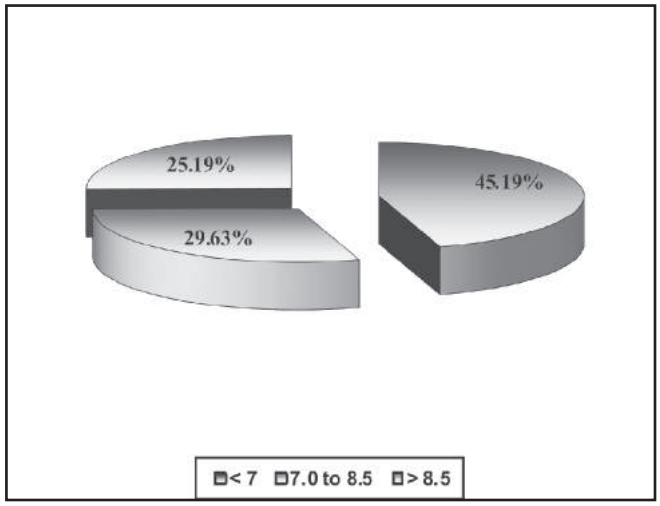
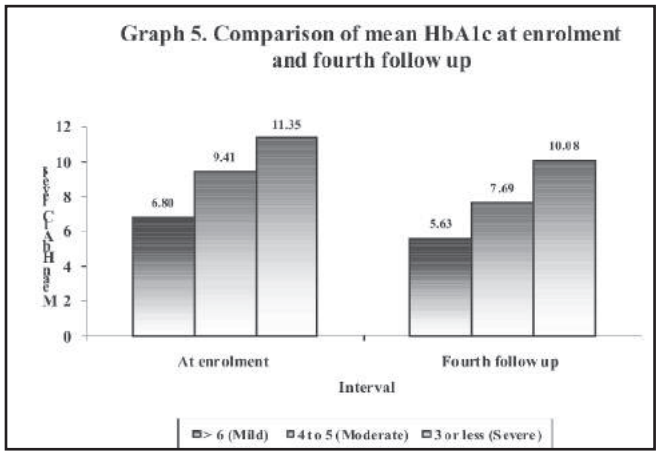


Table 4. HbA1C at fourth follow up



In this study during the fourth follow up most of the patients (45.19%) with depression HbA1C levels were less than 7 followed by 7.0 to 8.5 (29.63%) and more than 8 (25.19%). The mean HbA1c levelwas 7.81 ± 2.17.

Table 5. Comparison of depression score with mean HbA1c at enrolment and fourth follow up



In this study the HbA1c levels at fourth follow up in patients with mild depression (5.63 ± 1.68) were significantly less when compared to HbA1c levels at enrolment (6.80 ± 0.34) ($p<0.001$) Similar pattern was observed among those who reported moderate depression scores (7.69 ± 3.27 vs 9.41 ± 2.17; $p<0.001$.

Discussion

IEvidence that depressive symptoms affect physical symptoms related to glucose regulation through the pathway of poorer self-care.

A small study[50] from Iran reported 55% prevalence of depression in patients with T2DM.

Comparison with Indian studies:

study[91] from Ludhiana, India to estimate the prevalence of depression among a consecutive group of 80 patients with type 2 diabetes and assess its impact on glycemic and blood pressure control using Major Depression Inventory and scores reported a prevalence of 38.8%.

A recent study from AIIMS, New Delhi found 16% of patients with type 2 diabetes had depression as measured by the hospital anxiety depression score (HADS).

In the present study, statistically significant reduction was seen in FBS and PPBS levels at first follow up (175.28 ± 46.73 and 207 ± 55.25 mg/dL; p=0.007 and p=0.006 respectively), second follow up (161.01 ± 44.75 and 191.72 ± 54.56 mg/dL respectively; $p<0.001$), third follow up (145.50 ± 41.70 and 172.49 ± 50.12 mg/dL respectively; $p<0.001$) and fourth follow up (129.02 ± 36.69 and 153.57 ± 42.42 mg/dL respectively; $p<0.001$) compared to FBS and PPBS levels at enrolment (190.47 ± 49.38 and 225.57 ± 59.59 mg/dL respectively). Similarly, the mean HbA1C levels at fourth follow up were significantly less compared to those at enrolment (8.73 ± 2.30 vs 7.81 ± 2.17; p=0.001).

Strengths of the study:

Good emphysis was given on good councelling in view of diet, medication to be taken, insight of disease current status with further progression if managed well with all the instructions given to both patient and family member.

Further, this study was done among the patients aged between 35 to 50 years which is less explored in many studies and the study also excluded possibility of senile depression with advanced age.

The study was having limitations like smaller sample size, exclusion of patients with diabetic complications.

Overall, the study highlights that the need of antidepressants in diabetic patients needs meticulous monitoring to maintain the sustain effect of same.

Physician need to judge the requirement of antidepressants, anti anxiety or combination of both as pre patients symptoms and response to treatment.

The present study also emphasizes the need of psychotherapy, extensive counseling in patients regarding disease, its progression, control, benefits if well controlled or hazards if neglected.

Conclusions

The present study showed 15.11% comorbid prevalence of depression in patients with type 2 diabetes mellitus.

The study also shows role of primary care physicians in giving patient adequate time to councel, give insight to the patient regarding disease, help patient in leading better life with better self care, motivating family members to take active part in patients diabetic care which gradually helps in reducing depressive symptoms and lead a healthy life with better glycemic control.

References

1. Tripathy BB, Chandalia HB. RSSDI:Textbook of diabetes mellitus. 2nd ed., New Delhi:Jaypee Brothers;2008.
2. QOL Questionnaire
3. Khamseh ME, Baradaran HR, Rajabali H. Depression and diabetes in Iranian patients: A comparative study. Int J Psychiatry Med 2007;37:81-6.
4. Mathew CS, Dominic M, Isaac R, Jacob JJ. Prevalence of depression in consecutive patients with type 2 diabetes mellitus of 5-year duration and its impact on glycemic control. Indian J EndocrinolMetab 2012;16(5): 764-8.
5. Skaff MM, Mullan JT, Almeida DM, Hoffman L, Masharani U, Fisher L. Daily negative mood affects fasting glucose in type 2 diabetes. Health Psychol. 2009;28:265-72.
6. Balhara Y, Sagar R. Correlates of anxiety and depression among patients with type 2 diabetes mellitus. Indian J EndocrMetab. 2011;15:50-4.
7. Mathew CS, Dominic M, Isaac R, Jacob JJ. Prevalence of depression in consecutive patients with type 2 diabetes mellitus of 5-year duration and its impact on glycemic control. Indian J EndocrinolMetab 2012;16(5): 764-8.
8. Steed L, Cooke D, Newman S. A systematic review of psychosocial outcomes following education, self-management and psychological interventions in diabetes mellitus. Patient EducCouns2003;51(1):5-15.
9. Hauser J. DepressionMedications: Antidepressants. Available from: URL:http://psychcentral.com/lib/2007/depression-medications-anti depressants/all/1/Access Date:28.04.2013

ORIGINAL ARTICLE

Comparison between intrathecal ropivacaine-clonidine with intrathecal bupivacaine-clonidine for lower limb surgeries and lower abdominal surgeries

Bhalerao P.M., Khedkar S.M., Sancheti R.P., Kapse U.S

Department of Anaesthesia, B.J.Govt. Medical college and Sassoon General Hospitals, Pune.

ABSTRACT

Background: Lower abdominal and lower limb surgeries are generally conducted under spinal anaesthesia with bupivacaine. Ropivacaine is now gaining popularity due to lower incidence of cardiac and neurotoxicity. Clonidine prolongs the duration of intrathecally administered local anaesthetic agents. **Aim:** To study the effects of intrathecal ropivacaine-clonidine for lower abdomen and lower limb surgeries and compare it with intrathecal bupivacaine-clonidine. **Materials and methods:** 100 patients of ASA Grade I and II were divided into two groups of 50 each by computerised randomization. Group R was given 0.75% isobaric ropivacaine 3ml with 25 µg clonidine intrathecally and group B was given 0.5% hyperbaric bupivacaine 3 ml with 25 µg clonidine intrathecally. Haemodynamic parameters, the time of onset of motor and sensory block, regression of sensory block, duration of motor block and side effects were observed. **Results:** The onset of motor block was earlier (159.80±20.050 sec) in group B than group R (168.60±16.783 sec) . The onset of sensory block was delayed with group B (90.40±10.683 sec) as compared with group R (82.20±13.445 sec) . Mean duration of motor block was longer with group B (170.24±10.53 min) than with group R (147.02±9.58 min). These differences were statistically significant. The duration of analgesia was prolonged with group R (344.60±31.51 min) than with group B (296.90±22.2 min). Incidence of hypotension, bradycardia, nausea, vomiting were seen marginally more with bupivacaine than ropivacaine. **Conclusion:** Spinal anaesthesia with isobaric ropivacaine with clonidine is an safe and effective alternative to bupivacaine with clonidine for lower abdominal and lower limb surgeries.

Keywords: Ropivacaine, bupivacaine, intrathecal, clonidine.

Introduction

Spinal anaesthesia also called spinal analgesia or sub-arachnoid block (SAB) is a form of regional anaesthesia involving injection of a local anaesthetic into the subarachnoid space. Most of the surgeries of lower abdominal and lower limb are usually conducted under spinal anaesthesia with bupivacaine. Ropivacaine, which blocks sensory nerve fibers more readily than motor fibers, is now gaining popularity due to its reduced cardiac toxicity[1]. Recent studies with intrathecal ropivacaine have demonstrated low cardiovascular and neurotoxic effects, good tolerability and efficacy. The additives like clonidine prolongs duration of intrathecally administered local anaesthetics & it has potent antinociceptive properties also[2,3,4].

In present study we would like to compare the effects of 0.75% intrathecal ropivacaine with clonidine & 0.5%Intrathecal bupivacaine with clonidine in patients scheduled for lower limb and lower abdominal surgeries.

Material & Methods

This study was a prospective, randomized, double-blind, single centre study. The study was conducted in a tertiary care level institute and a clinical research organization after ethical commitee approval.100 cases of ASA grade I and II, age between 20-50 years of both sex were studied. Patients were randomly allocated to one of two groups. Each group was consisting of 50 patients. Group R received 0.75% isobaric ropivacaine 3ml (22.5 mg) & 25 µg clonidine intrathecally. Group B received 0.5% hyperbaric bupivacaine 3ml (15mg) & 25 µg clonidine intrathecally according to groups allotted to them by

Address for correspondence:
Bhalerao P.M., Department of Anaesthesia, B.J.Govt. Medical college and Sassoon General Hospitals, Pune.

double blind technique. The onset of motor & sensory block was assessed every minute. Motor block was assessed by asking the subject to lift his lower limbs. Complete motor block is when no voluntary movement is possible. The Sensory block was assessed by a pin prick test performed with 22G short bevelled needle. During surgery patient did not receive any sedative.Baseline observations of heart rate, blood pressure, Spo_2 were noted before intrathecal drug injection. Heart rate, ECG(electrocardiography), NIBP(non-invasive blood pressure)& peripheral oxygen saturation was monitored intraoperatively. After intrathecal drug injection, data was recorded during first hour at 15, 30, 45, 60 minutes &thereafter 2^{nd}, 4^{th}, 8^{th} , 12^{th} hour up to 24 hours. Pulse rate, respiratory rate and depth, blood pressure, time of injection of intrathecal drugs, the onset of anaesthesia (sensory and motor), time for regression of sensory and motor block, duration of analgesia, any other side effects like nausea, vomiting, pruritus, urinary retention, headache and other neurological symptoms were monitored. Degree of motor blockade was judged by Bromage scale. Intensity of pain was assessed by using a 10 point visual analogue scale(VAS) score. Grade 0 (0-1) - Good analgesia, Grade 1 (1-4) - Moderate analgesia, Grade 2 (4-7) -Mild analgesia, Grade 3 (7-10) -No analgesia. Supplemental analgesia was given with Inj.Diclofenac 75mg intramuscular when VAS score> 4.Duration of analgesia was measured as time interval between intrathecal injections to patients first request of analgesic. Patients were monitored for occurrence of side effects and complications during intraoperative & postoperative period. More than 20% fall in mean blood pressure or a systolic blood pressure less than 90mmHg systolic were be treated with boluses of 6mg of inj.mephenteramine and i.v. fluids where appropriate.

Statistical Analysis

Unpaired t test was used depending upon the nature of data. The data was analyzed as mean, SD, minimum, maximum and 95% of confidence interval.

Results

Demographic data when analysed did not show any significant difference in age, weight, height and sex ratio among two groups and thus the two groups were comparable.There was no significant difference in pulse rate or systolic and diastolic blood pressure before induction in each group.

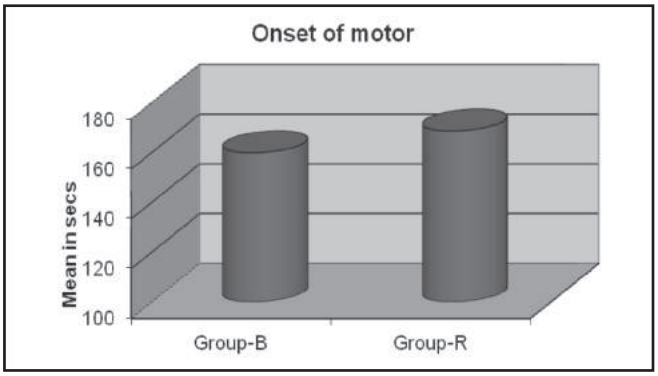
The mean time of onset of motor block was 159.80±20.050 sec with group B as compared to 168.60±16.783 sec with group R (Table I and Graph 1). This difference in time of onset of motor block was statistically significant (P-0.019).

Table I: Comparison of the time of onset of motor action

Group	Mean (sec)	±SD	Unpaired T test	p^* value
Group-B	159.80	20.050		
Group-R	168.60	16.783	2.380	0.019

$p^* < 0.05$ is significant

Graph 1: Comparison of the time of onset of motor action



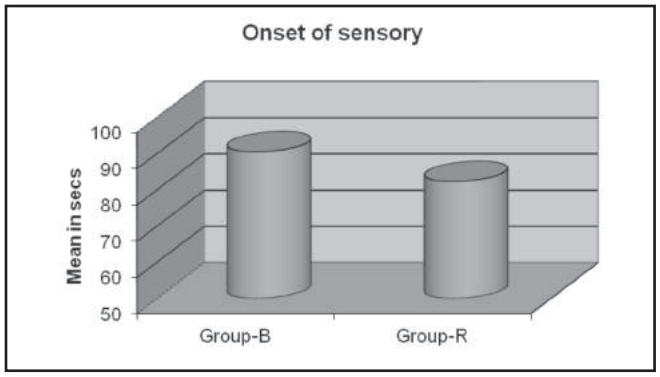
Mean time of onset of sensory block was 90.40±10.683 sec with group B, while it was 82.20±13.445 sec with group R (Table II, Graph 2). this difference in onset of sensory block was statistically significant (P-0.001).

Table II : Comparison of time of onset of sensory block

Group	Mean (sec)	± SD	Unpaired T test	p^* value
Group-B	90.40	10.683		
Group-R	82.20	13.445	3.376	0.001

$p^* < 0.05$ is significant

Graph 2: Comparison of the time of onset of sensory block



Mean duration of motor block was 170.24±10.53 min with group B, while it was 147.02±9.58 min with group R (Table III). This difference in duration of motor block was statistically significant (P<0.001).

Table III: Comparison of duration of motor block

Group	Number of patients (n)	Duration of motor block (min) (Mean ± SD)	T test	p^* value
Group B	50	170.24 ± 10.53	11.5360	<0.001
Group R	50	147.02 ± 9.58		

Mean time of segmental regression of sensory block was 181.20±9.823 min with group B, while it was 193.20±16.835 min with group R (Table IV). This difference in time of segmental regression of sensory block was statistically significant(P < 0.001).

Table IV: Comparison of the time of segment regression of sensory block

Group	Number of patients (n)	Time for segment regression(min) (Mean ± SD)	T test	p^* value
Group B	50	181.20 ± 9.823	4.353	<0.001
Group R	50	193.20 ± 16.835		

$p^* < 0.05$ is significant

The duration of analgesia was measured as time interval between intrathecal injection to patients first request of analgesic. Mean duration of analgesia was 296.90±22.24 min with group B, while it was 344.60±31.51 min with group R. The incidence of hypotension was more in group B (4 patients out of 50) than group R (2 patients out of 30). Similarly incidence of bradycardia was more in group B (6 patients out of 50) than group R (3patients out of 50).Nausea was also more in group B(3 patients out of 50) than group R(1 patient out of 50).Vomiting was more in group B(2 patients out of 50) as compared to group R (1 patient out of 50).

Discussion

Bupivacaine is an amide type of local anaesthetic,a racemic (50:50) mixture of S and R enantiomer. It has been used as the drug of choice for spinal anaesthesia due to its longer duration of action (3-7 hours), limited placental drug transfer and minimal side effects compared to other local anaesthetics. In 1979, attention was drawn towards the cardiotoxic and neurotoxic effects of bupivacaine, linked to its R-enantiomer. As a result, another amide type of local anaesthetic, ropivacaine, the S-enantiomer of propyl derivative of pipecoloxylidide was first introduced and approved for spinal anaesthesia[5]. Ropivacaine, being a pure S-enantiomer, has low lipid solubility and blocks nerve fibers involved in pain transmission to a greater degree than those involved in motor function. Most of the procedures are usually conducted under spinal anaesthesia with bupivacaine. Ropivacaine, which blocks sensory nerve fibers more readily than motor fibers, is now gaining popularity due to its reduced cardiac toxicity. Recent studies with intrathecal ropivacaine have demonstrated low cardiovascular and neurotoxic effects, good tolerability and efficacy. Clonidine is a partial alpha$_2$ agonist and it has ability to potentiate the action of local anaesthetic agents.

In this study we studied the effects of intrathecal ropivacaine-clonidine in spinal anaesthesia for lower limb and lower abdominal surgeries and compared it with intrathecal bupivacaine-clonidine in 50 patients in each group.

In this particular study, the onset of motor block was shorter in bupivacaine (159.80±20.050 sec)than ropivacaine (168.60±16.783 sec) while sensory block was seen earlier in ropivacaine (82.20±13.445 sec) than bupivacaine (90.40±10.683 sec). Nevertheless, the

magnitude of difference found in the study is so small that it is difficult to say that one is better than the other. Likewise, none of the patients required conversion to general anaesthesia and adequate level of sensory analgesia and complete motor block was achieved in all patients. Therefore, the quality of block was comparable between both groups.

The only important difference between two groups was the duration of motor block which was shorter with ropivacaine (147.02±9.58 min) than bupivacaine (170.24±10.53 min) and shorterthan ropivacaine. This finding favors the use of ropivacaine, as shorter motor block would mean early mobilization, shorter time to first micturation and earlier recovery from respiratory disturbance caused by spinal anaesthesia.

The results of this study were comparable with the study done by M. Mantouvalou, et al[6] where the onset of motor block was significantly faster in the bupivacaine group (group A) : 8 ± 5 min compared with 12 ± 5 min in the ropivacaine group (group B) and 11 ± 7 min in the levobupivacaine group (group C). Ropivacaine presented a shorter duration of motor block than bupivacaine and levobupivacaine (269 ± 20 min, 278 ± 70 min and 273 ± 80 min, respectively). Duration of sensory block was significantly shorter in patients receiving ropivacaine than in those receiving bupivacaine or levobupivacaine (220 ± 30 min, 237 ± 88 min and 230 ± 74 min, respectively).

Mcnamee et al.[7], compared 17.5 mg of plain ropivacaine with 17.5 mg of plain bupivacaine in patients undergoing total hip arthroplasty under spinal anaesthesia. There were no significant differences in the upper extent of sensory block, in the onset of motor and sensory block, as well as in the intraoperative efficacy between the two groups. On the other hand, a more rapid postoperative recovery of sensory and motor function was seen in the ropivacaine group compared with the bupivacaine group, which is also in accordance with our findings.

The results were also comparable with the study by Gautier PE et al[8]. In this study results showed intrathecal ropivacaine 10 mg produced shorter sensory anaesthesia and motor blockade than bupivacaine 8mg (152 ± 44 min and 135 ±41 min in ropivacaine vs. 181 ± 44 min and 169 ± 52 min in bupivacaine.

Hyperbaric spinal ropivacaine 18 mg (5 mg/ml) was compared to hyperbaric bupivacaine 12 mg (5 mg/ml) for Caesarean section by Chung et al[9]. 18 mg of 0.5% hyperbaric ropivacaine provided effective and similar spinal anaesthesia with a later onset of sensory block and a shorter duration of sensory and motor block, compared with 12 mg of 0.5% hyperbaric bupivacaine for Caesarean section.

The intraoperative quality of anaesthesia was excellent in both groups and there was no difference in side effects. We did not record any postoperative neurological symptoms in any of our patients up to 48 h after administration of intrathecal ropivacaine. On the other hand incidence of hypotension, bradycardia, nausea and vomiting were seen marginally more in bupivacaine group than in ropivacaine group but not statistically or clinically significant.

Conclusions

In the 'quest' for an ideal local anaesthetic for spinal anaesthesia, the lower lipid solubility of ropivacaine with an associated greater sensory, motor separation, could offer some advantages in day care anaesthesia, were early ambulation and voiding could be translated into earlier discharge. The use of additives, usually clonidine, to low doses of intrathecal ropivacaine has been studied for several indications and seems to emphasize the possibility to provide adequate intrathecal anesthesia with low doses of ropivacaine, without compromising the benefits of early mobilization and voiding. To conclude, spinal anaesthesia with 22.5 mg of 0.75% isobaric ropivacaine with clonidine is an effective and safe alternative to bupivacaine with clonidine. Ropivacaine provided clinically effective surgical anaesthesia of shorter duration, decreases the duration of motor block and improve post-operative analgesia with less side effects.

References

1. McClellan KJ, Faulds D. Ropivacaine. An update of its use in regional anaesthesia. Drugs 2000; 60: 1065-93.
2. Fogarthy DJ, Carbine UA, Milligan KR. Comparison of analgesic effects of intrathecal Clonidine & intrathecal morphine after spinal anaesthesia in patients undergoing total hip replacements. Br Journal anaes 1993;71:661-4.
3. YakshTL, ReddySV. Studies in primate on the analgesic effects associated with intrathecal action of opiates, alpha adrenergic agonist & baclofen. Anaesthesiology 1981; 54:451-67.

4. Liu S,ChiuAA,NealJM,etal.Oral Clonidine prolongs lignocaine anaesthesia in human volunteers. Anesthesiology 1995;82:1353-9.
5. J.H.McClure. Ropivacaine. Br journal anaes 1996; 76:300-307 .
6. M. Mantouvalou, S. Ralli, H. Arnaoutoglou, G. Tziris,G. Papadopoulos. Spinal anesthesia : Comparison of plain ropivacaine, bupivacaine and levobupivacaine for lower abdominal surgery .Acta Anaesth. Belg 2008;59: 65-71.
7. McNamee D., McClelland A., Scott S., Milligan K., Westman L., Gustafsson U.Spinal anaesthesia : comparison of plain ropivacaine 5 mg/ml with bupivacaine 5 mg/ml for major orthopaedic surgery. Br Journal anaes 2002;89:702-706.
8. Gautier P., De Kock M., Van Steenberge A., Poth N.,Lahaye B., Fanard L., Hody J.Intrathecal ropivacaine for ambulatory surgery. A comparison between intrathecal bupivacaine and intrathecal ropivacaine for knee arthroscopy. Anaesthesiology 1999;91:1239-1245.
9. Chung C., Choi S., Yeo K., Park H., Lee S., Chin Y.,Hyperbaric spinal ropivacaine for cesarean delivery : a comparison to hyperbaric bupivacaine. anesth analg 2001;93: 157-161.

ORIGINAL ARTICLE

A Study Of Results Of Surgery Using Electro-Cautery For Skin Incisions And Intermittent Sub-cuticular Suturing For Closure Of Skin Incisions.

Kasbekar Prasad, Jadhav Shailaja, Bhoir Lata, Mishra Ajit

Department of surgery, BJ Medical College & Sassoon Hospital, Pune

ABSTRACT

We conducted a study on 100 random patients in which all surgical incisions were taken by the fine tip needle cautery, and closure of these incisions was done with 3-0 or 4-0 polyglactan in intermittent sub-cuticular manner. We found that this method gave very good results in terms of minimal scarring of wound, minimal post-operative pain, good patient satisfaction and adequate scar strength.

Introduction

Current surgical practices normally entail use of surgical scalpel (no. 20 or 22) for skin incisions in routine as well as emergency surgeries. Closure of these incisions is done by usage of either skin staples or use of skin sutures. Suturing methods include simple, mattress or continuous sub-cuticular sutures. In our study, all patients with surgeries involving clean and clean contaminated cases were subjected to skin incision with needle-tip cautery and skin closure with intermittent sub-cuticular sutures. The results of this method were thus evaluated.

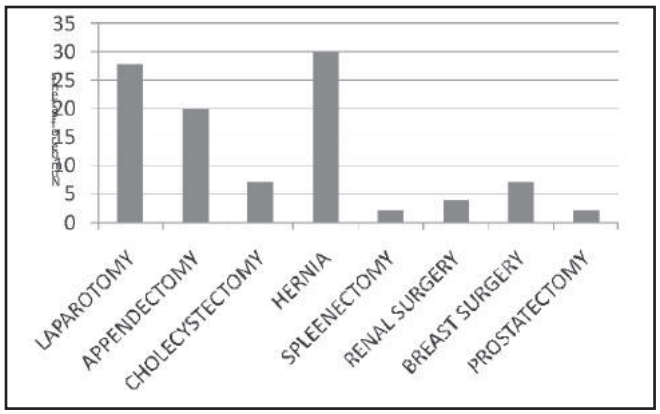
Aims And Objectives

To develop a technique of skin incision and closure which will result in few post surgery complications, good cosmetic results, minimal post-op pain and good patient satisfaction.

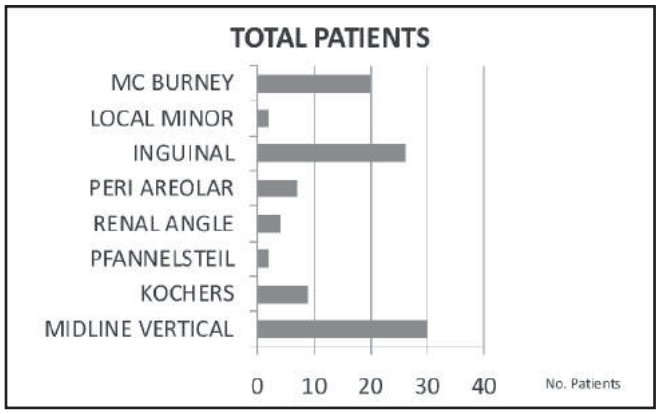
Materials And Methods

A total of 100 cases were examined. Cases included 42 males and 58 females. The surgeries performed included 28 laparotomies (16 intestinal perforations, 7 intestinal obstructions, 4 hemo-peritoneum and 1 feeding jejunostomy), 20 open appendectomies, 7 open cholecystectomies, 26 inguinal hernias (18 indirect and 8 direct), 2 open splenectomies, 2 cases of umbilical hernia, 1 nephrectomy, 3 pyelolithotomy, 7 fibroadenoma of breast excision and 4 open prostatectomy cases. Ages of the patients varied from 16 years to 82 years. Pre-operative cleaning of surgical site was done with 0.5% iodine solution and spirit. The procedure followed involved taking the skin incision with the needle tip electro-unit set in cut mode at 40units' power in blend mode. Rest of the surgery post incision was done as per routine methodology. Closure of skin incision was carried out with 3-0 or 4-0 polyglactan in intermittent sub-cuticular fashion. The sutures were placed at approximately 1 to 1.5 cm intervals. The skin site was then cleaned with spirit and dried. Dressing of incision site was then done with either direct band-aid application, use of sterile micropore tapes or gauze with dynaplast adhesive. No local anaesthetic agent was applied or injected at the skin edges after surgery. The patients were then kept admitted for varying periods based on the magnitude of their surgery and discharged. The dressings were removed directly on the 7th post-operative day and the wound left open. However 5 cases showed discharge from wound and soakage of dressing, in these cases, the dressing was removed on the 3rd day followed by daily dressing.

Address for correspondence:
Kasbekar Prasad, Department of surgery, BJ Medical College & Sassoon Hospital, Pune
drprasadkasbekar@gmail.com



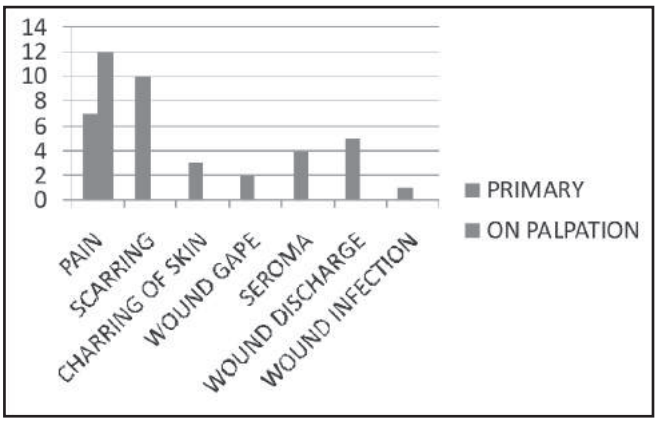
GRAPH 1:- Break-up Of Surgeries Performed On The Patients



GRAPH 2:- Break-up Of Types Of Incisions Taken

Results

The results obtained by this method were very promising. 90 cases of the 100 cases examined developed minimal post operative scarring when examined at the 7th post operative day. 10 cases showed excessive scar tissue formation of which 6 cases were laparotomies, 2 cases of inguinal hernia and 1 pyelolithotomy. Only 3 cases complained of pain at the incision site as a primary complaint and 12 more complained of pain on questioning. 2 of the 3 cases complaining of pain were those with incisions at the renal angle. All patients expressed satisfaction with regards to the surgery, and minimal scarring and absence of external sutures or staples was noticed by all patients and their relatives. Greatest satisfaction was expressed by both males and females younger than 40 years. Local wound complications were seen in 10 cases. 1 case of laparotomy for early ileal perforation resulted in infection of the wound evident by pus discharge. In that case, a single stitch was cut to permit drainage of pus. Total wound integrity was not hampered. 2 cases of intestinal obstruction developed a burst abdomen and gaping of wound. These wounds had to be secondarily sutured at a later date. 4 cases of inguinal hernia developed a seroma at the operative site of which 1 was drained and the other 3 were conservatively managed. Post-operative charring at incision site was seen in 3 cases which included 1 laparotomy, 1 pyelithotomy and 1 splenectomy case. Time taken for skin closure averaged from 3 minutes in closure of fibroadenoma surgery and appendectomy incisions to 20 minutes for closure of laparotomy, renal angle incisions and splenectomy incisions.



GRAPH 3:- Complications Seen In The Patients Post Surgery

Discussion

The purpose of this study was to develop a method of skin incision and closure which would lead to minimal scarring, minimal post-operative pain, good patient satisfaction and minimal wound related post-operative complications.

The parameters we studied included (1) type of skin incision taken, (2) time taken for skin closure, (3) incidence of complications (infection, discharge, gape, skin charring), (4) patient satisfaction, (5) appearance of wound on day 7 (degree of cosmesis achieved).

Use of electro-cautery for skin incisions showed minimal charring of skin edges (macroscopically evident in 3 of 100 cases) with minimal sub-cuticular bleeding due to mild coagulative action of the cautery. Improper positioning of cautery tip during incision and not stretching the skin during incision were factors

associated with scarring of edges.

Similar studies done for comparison between use of electro-cautery for skin incisions for abdominal surgery incisions and in neuro-surgery skin incisions have shown superiority for the elecro-cautery over the scalpel in terms of reduced post-operative pain, lesser bleeding from the skin edges and fewer wound complications (such as wound hematomas). Reduced skin scarring and adequate wound strength have also been demonstrated in these studies. [1]

Intermittent sub-cuticular suturing showed well approximated highly cosmetic wounds. Initial time taken for skin suturing varied from approximately 5 to 7 minutes for smallincisions (3 to 6 cm) to more than 25 to 30 minutes for large incisions (20 to 30 cm) such as laparotomy wounds. However this later levelled out to less than 3 minutes for small incisions to less than 15 minutes for large incisions. This can be attributed to the learning curve for this method. The use of interrupted sutures gave the advantage that infected wounds (1 case of 100) and wounds with collections (1 case of 100) could be drained with removal of single stitch without affecting the integrity of the other sutures. Thus total wound integrity was not hampered in these cases.

Other studies on sub-cuticular suturing of skin edges have demonstrated definite advantage over external skin sutures in terms of:- [2,3]

(1) Reduced post-operative pain attributed to complete closure of skin edges and minimal trauma of skin surface as compared to external sutures and skin staples.

(2) Reduced incidence of wound infection attributed to internalisation of suture thread which acts as a nidus for bacterial growth.

(3) Better approximation of wound edges resulting in less scarring and better cosmesis.

Excessive scarring of wound edges was also seen in a few cases (10 cases of 100 cases). This could be attributed to possibly improper approximation of wound edges. .

Conclusion

`This method of skin incision and closure has thus shown promising results in all clean and clean contaminated surgeries and can be considered in all such cases.

FIG 1:- Case Of Laparotomy Done By The Above Mentioned Method

FIG 2:- Case Of Epigastric Hernia Done By The Above Mentioned Method

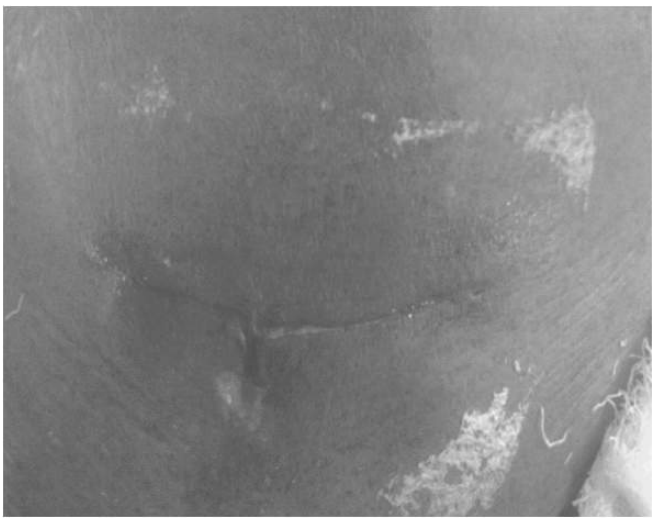


FIG 3:- Pfannelsteil Incision Taken For Frayers

Prostatectomy (scar Below Incision Site Was Site Of Supra-pubic Catheter)

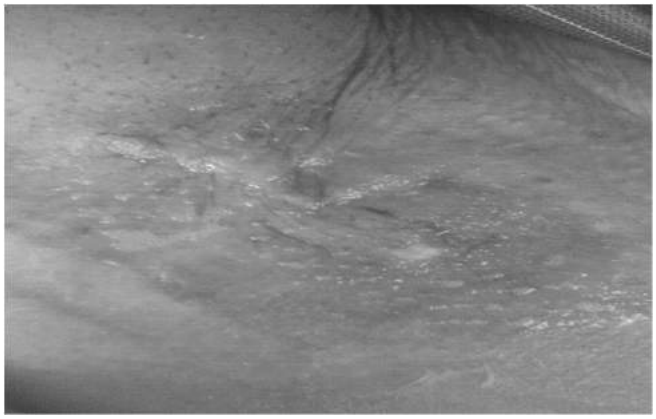


FIG 4:- Scar Obtained In Case Of Right Inguinal Hernia Surgery (patient Discharged On Pod 3 After Spraying Site Of Incision With Healex Spray)

References

1. B. Sheikh.Safety and efficacy of electrocautery scalpel utilization for skin opening in neurosurgery. British Journal of Neurosurgery, June 2004; 18(3): 268 – 272
2. M Taube, R J Porter, P H Lord. A combination of subcuticular suture andsterile Micropore tape compared with conventional interrupted sutures for skin closure. Annals ofthe Royal College of SurgeonsofEngland,1983; 65: 164-7.
3. Fiennes A GTW. Interrupted subcuticular polyglactin sutures for abdominal wounds. Annalsof the Royal College of Surgeons of England, 1985; 67: 84.

ORIGINAL ARTICLE

Comparative Study Of MRCP And USG In Pancreaticobiliary Pathologies

Gajbhiye M I, Raybhan R V, Dr. Khadse G J

Department Of Radiodiagnosis, B.J Medical College & Sassoon General Hospital, Pune

ABSTRACT

Evaluation of suspected Hepato-Biliary and Pancreatic pathologies has tradionally involved Ultrasonography (USG), Computed Tomography (CT), and Invasive Cholangiography (ERCP and PTC). The present study has been carried out to assessthe role of MRCP in providing good visualization of hepto-biliary and pancreatic ductal system 75 clinically symptomatic patients for pancreatico-biliary pathologies were examined both by MRCP as well as by USG. The findings of MRCP and USG were comparedagainst the post operative histopathological diagnosis. Out of 75 clinically symptomatic patients most common pathologies are benign 49 (65.4%) like pancreatitis, CBD calculus and malignant are 22(29.3%) like cholangiocarcinoma, periampullary ca, CBD stricture having male preponderance and in 4(5.3%) patients findings were normal . To have an accurate diagnosis Non invasive procedure MRCP is superior to USG for pancreatico-biliary pathologies as MRCP has high resolution imaging, 3d reconstruction capacity for diagnosing pathologies like choledocolithiasis, CBD strictures and malignant conditions like cholangiocarcinoma and sensitivity, specificity of MRCP is higher for these pathologies as compared to USG.

Introduction

MRCP means Magnetic resonance cholangio-pancreatography. First described in clinical practice in 1991 (Wallner et al 1991)[1]. MRCP technique is based on heavily T2 weighted pulse sequences which result in dramatic increase in contrast between stationary fluid (bile) and background tissue (hepatic, pancreatic parenchyma and peritoneal fat)[2]. Background is sufficiently suppressed to result in a cholangiographic or pancreaticographic effect without need for contrast medium administration as in other invasive cholangiographies which results in a very high signal intensity of bile and background at low[3].

Evaluation of suspected Hepato-Biliary and Pancreatic pathologies has tradionally involved varieties of modalities, including Ultrasonography (USG), Computed Tomography (CT), and Invasive Cholangiography(ERCP and PTC). These techniques have limitations because of poor visualization of ductal stones and strictures on USG and CT and need for invasive procedures like ERCP and PTC. MRCP is noninvasive modality that provide good visualization of hepto-biliary and pancreatic ductal system.

Magnetic resonance cholangio-pancreatography (MRCP) can reliably demonstrate normal and abnormal pancreatic and biliary ducts like dilated ducts, duct calculi, and can accurately diagnose the cause and site of obstruction due to mass lesion or calculi. It also helps to differentiate between various pancreatico-biliary pathologies like cholelithiasis, CBD calculi, cholangiocarcinoma, to study normal anatomy of bile ducts, pancreatic ducts and in diagnosis of congenital anomaly like pancreas divisum, annular pancreas[4-7] and chronic pancreatitis[8,9]. USG is easily available and cheaper modality but it is operator dependent.

Aims And Objectives

1. Detection, characterization and evaluation of various Pancreatico-biliary pathologies by MRCP and USG.
2. Comparative assessment of MRCP and USG in various pancreaticobiliry pathologies.

Materials & Methods

Total 75 clinically symptomatic patients for pancreatico-biliary pathologies were referred for MRCP and USG to the Department of Radiodiagnosis. For MRCP Patients

Address for correspondence:
Dr. Gajbhiye M I, Professor Dept. of Radiodiagnosis, BJMC and SGH Pune. Mob. No. : 9923680346
E-mail: dr.minakshi123@gmail.com

were kept NBM for 6hrs. 1.5 Tesla GE – Signa Hdxt MRI machine was used for study. Coil; Body coil. Patients with metallic implant, cardiac pacemaker and claustrophobia were excluded from study. MRCP sequences used; T2 SSFSE-Axial/coronal, Axial T2 FRFSE, 2D FIESTA axial/coronal, Coronal 3D FSE (Resp. triggered), Additional; T1-Axial/coronal FAT SAT pre and postcontrast GRE (whenever indicated).

USG of all patients was done on GE LOGIQ-3 EXPERT Machine. Findings of MRCP and USG were compared. Radiological diagnosis was Confirmed by postoperative findings/biopsy/histopath.

Observations And Results

Table1- Showing age wise distribution of patients.

Age Group In yrs	No. of Patients	Percentage %
<10	2	2.7
11-20	6	8
21-30	9	12
31-40	11	14.7
41-50	15	20
51-60	11	14.7
61-70	16	21.3
70+	5	6.6
Total	75	100

Table-2 Showing sex wise distribution of patients in present study.

sex	No	Percentage(%)
Male	43	57
Female	32	43
Total	75	100

Out of the 75 patients studied, 43 (57.3%) were male and 32(42.7%) were female patients.

Out of the total 75 cases, 49(65.4%) patients had benign disorders, while 22(29.3%) patients had malignant disorders. Findings were normal in 4(5.3%) patients. Few of patients had combination of pathologies.

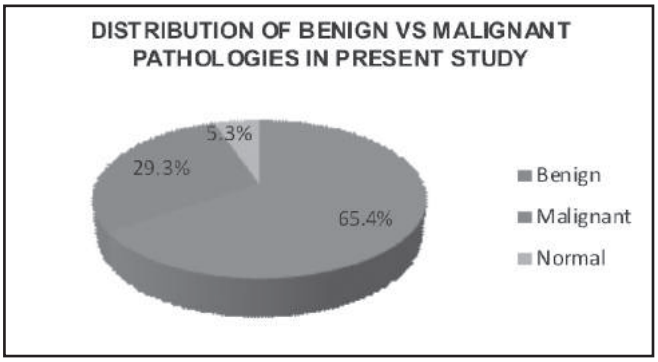


Table- 3 Showing Percentage of Benign Vs Malignant diseases in present study.

BENIGN PATHOLOGY	MALE	FEMALE	TOTAL
CHOLEDOCHAL CYST INCLUDING CAROLI'S DISEASE	2(2.7%)	1(1.3%)	3(4%)
CBD CALCULUS	6(8%)	7(9.3%)	13(17.3%)
BENIGN STRICTURE OF CBD	3(4%)	4(5.3%)	7(9.3%)
POST OPERATIVE CBD STRICTURE	0	1(1.3%)	1(1.3%)
CHOLECYSTITIS	2(2.6%)	5(6.7%)	7(9.3%)
GB CALCULI	3(4%)	8(10.6%)	11(14.6%)
CYSTIC DUCT CALCULUS	0	1(1.3%)	1(1.3%)
PANCREATITIS WITH/WITHOUT PSEUDOCYST	17(22.7)	2(2.6%)	19(25.3%)
CONGENITAL ANOMALIES OF PD	0	1(1.3%)	1(1.3%)
PARASITIC INFESTATION	0	1(1.3%)	1(1.3%)

Out of the total 75 case, 49(65.4%) patients had benign disorders. Most common benign disorder observed was pancreatitis seen in 19(25%) patients with male preponderance. Second most common benign disorder was CBD calculi seen in 13(17.3%) patients with slight female preponderance. Least common was 1 case of pancreatic divisum and 1 case of intrabiliary rupture of hydatid cyst.

Table: 4- Showing distribution of various malignant disorders in present study.

Malignant Diseases	Male	Female	Total
Malignant CBD stricture	1(1.3%)	1(1.3%)	2(2.6%)
Cholangiocarcinoma	8(10.6%)	3(4%)	11(14.6%)
Ca Gall Bladder	1(1.3%)	1(1.3%)	2(2.6%)
Ca Pancreas	1(1.3%)	0	1(1.3%)
Periampullary Ca	5(6.6%)	1(1.3%)	6(8%)

Out of the total 75 cases, 22(29.3%) patients had malignant disorders. Out of which most common pathology was Cholangiocarcinoma seen in 11(14.6%) patients with male predilection. Second common was periampullary Ca seen in 6(8%) patients. Other conditions were less common.

Table %: Comparison of Diagnostic Efficacy of USG and MRCP interms of Sensitivity, Specificity and Likelihood Ratios

Condition	USG			MRCP		
	Sensitivity	Specificity	Likelihood Ratio	Sensitivity	Specifi city	Likelihood Ratio
Cholelithiasis	100%	97%	10	100%	97%	10
Choledocholithiasis	50%	97%	5	100%	97%	10
CBD Strictures	60%	91%	6	90%	97%	9
Cholecystitis	45.5%	100%	-	63%	100%	-
Choledochal Cyst	100%	100%	-	100%	100%	-
Malignant Pathologies	73%	91%	7.3	100%	94%	10

Discussion

In our study, cholelithiasis with choledocholithiasis was seen in 16(21.3%) patients. On MRCP, CBD stones are seen as Hypointense filling defects within lumen of CBD on T2W SE images. Advantage of MRCP is that stones as small as 3 mm can be visualized[4,7].

In 3(4%) cases of choledochal cyst seen in our study, MRCP yielded diagnostic information by providing exact anatomical map for presurgical evaluation. Out of three cases of choledochal cyst, 2 cases were type I choledochal cysts while 1 case was type V (Caroli's disease). MR Cholangiographic technique allows direct imaging of the cyst in multiple planes[10, 11].

CBD strictures were detected in 10(13.3%) cases out of which 7(9.3%) were benign, 2(2.6%) were malignant and 1(1.3%) was postoperative anastomotic stricture. On Ultrasound it is difficult to visualize distal CBD, this problem get solved on MRCP. MRCP demonstrates exact location, length as well as type of stricture. MRCP allows evaluation of the biliary system beyond a tight stricture, evaluation of biliary enteric anastomosis and biliary system during the immediate postoperative period [12].

Pancreatitis was seen in 19(25%) patients. Out of 19 cases 17(22.66%) were male suggesting male predilection. Ultrasound will not show much change in cases of acute pancreatitis. Pseudocyst and necrotic changes were detected rarely in acute pancreatitis. Exact extent was not appreciated due to bowel gas and probe tenderness. These problems get solved on MRCP. Duct abnormalities such as dilatation, irregularity and stones and complications of chronic pancreatitis such as pseudocysts are best depicted by thin section T2W SSFSE and thick slab T2W MRCP images[13].

Out of the total 75 cases, 22(29.3%) patients had malignant disorders. Out of which most common pathology was Cholangiocarcinoma seen in 11(14.6%) patients with male predilection. Second common was periampullary Ca seen in 6(8%) patients. High-quality T2-weighted MR cholangiography can complement contrast-enhanced MR imaging in depicting the site and cause of ductal obstruction[14].

Sensitivity, specificity and likelihood ratio of MRCP for choledocholithiasis, CBD strictures, cholecystitis and malignant pathologies are more as compared to USG. Sensitivity, specificity and likelihood ratio of MRCP for cholelithiasis and choledochal cysts are same as in USG.

Advantages Of MRCP Over Ultrasound:

- Provides high resolution images of biliary tree.
- Diagnostic images both above and below obstruction are possible.
- 3-D images of Biliary tree can be obtained which can help in diagnosis and treatment planning.

Advantages of USG over MRCP:

- Cheap and easily available.
- Can be easily performed by bedside of patient.
- Can be used in claustrophobic patients.
- Can be used in patients with metallic implants in body.

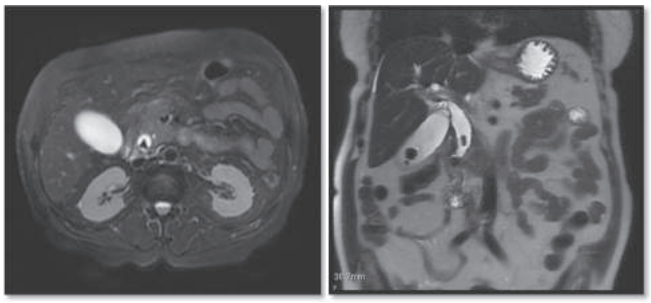
Conclusions

- MRCP and USG are non invasive, non ionizing imaging methods for evaluation of pancreatico-biliary pathology.
- MRCP is highly accurate and superior diagnostic modality in establishing diagnosis of pancreatico-

biliary pathologies. MRCP with it's high resolution, multiplanar imaging and 3D reconstruction capability is effective investigation for detection of pancreatico-biliary pathologies.

- MRCP is more sensitive and more likely to detect choledocholithiasis, cholecystitis, CBD strictures and malignant pathologies as compared to USG.
- Sensitivity, specificity and likelihood ratio of MRCP for cholelithiasis and choledochal cysts are same as in USG.

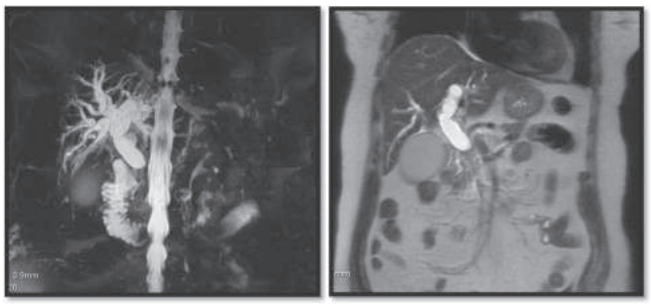
Fig 1:- Mid CBD calculculus with gall bladder calculi:- Axial coronal images showing Mid CBD calculus as hypointense filling defect with 2 filling defect in gall bladder s/o calculi.



1a) AX T2 **1b) COR T2**

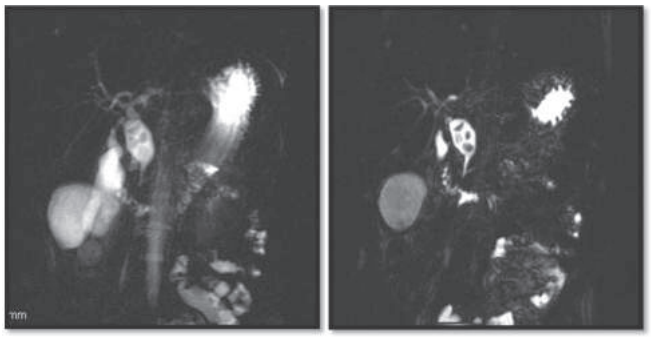
Fig 2:- Distal CBD malignant stricture

Axial and coronal images shows gross dilatation of CBD with IHBR dilatation due to distal CBD malignant stricture(arrow).



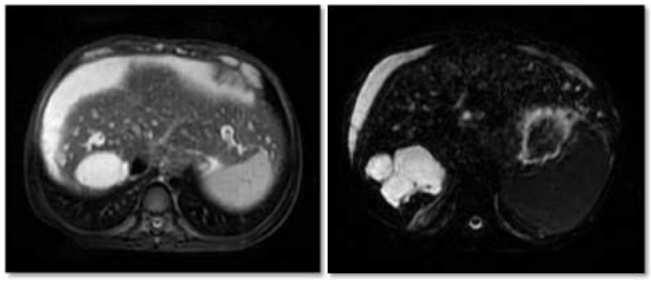
2a) COR 3D **2b) COR T2**

Fig 3 :- Type I choledochal cyst with calculi within it: Axial and coronal images show fusiform dilatation of mid portion of CBD with multiple hypointense calculi seen within it s/o choledochal cyst with calculi within it (arrow). Distal CBD is normal.



3a) COR THICK SLAB **3b) COR 3D**

Fig 4: Caroli's Disease:- Axial and coronal images show multiple intrahepatic hyperintense cystic lesions with central traversing vessel called as "central dot sign" (arrow) s/o Caroli's disease.



4a) AX T2 **4b) AX 3D**

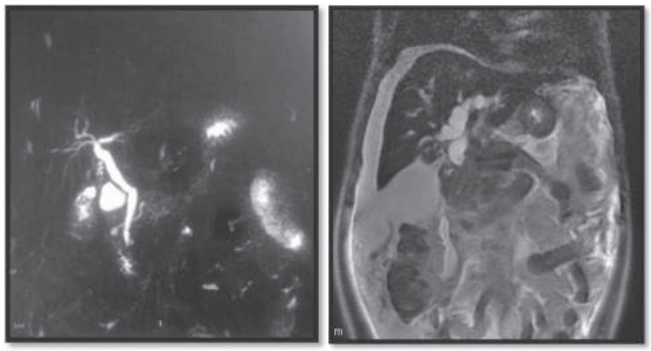


Fig. 5) Pancreas Divisum Pancreatic duct is seen opening at minor ampulla (arrow) while CBD is opening at major ampulla

Fig. 6) Distal CBD Cholangio ca Ill defined soft tissue involving distal CBD with proximal dilatation is noted.

Fig. 7) Periampullary Ca Ill defined soft tossue mass(arrow) at ampulla causing dilatation of CBD as well as Pancreatic duct.

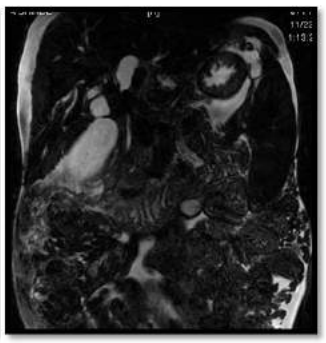


Fig. 8) Hilar Cholangio Ca Ill defined hypointense soft tissue mass(arrow) at hilar region causing dilatation of right and left hepatic duct and IHBR.

References

1. Wallner BK, Schumacher KA, Weidenmaier W, Friedrich JM. Dilated biliary tract: evaluation with MR cholangiography with a T2-weighted contrast-enhanced fast sequence. Radioiogy 1991; 181:805-808.
2. Ahmet Mesrur Halefoglu. Magnetic resonance cholangiopancreatography: A useful tool in the evaluation of pancreatic and biliary disorders. World J Gastroenterol 2007; 13(18):2529-2534
3. Caroline Reinhold, Patrice M. Bret, Laurent Guibaud et al. MR cholangiopancreatography: Potential and clinical applications. Radiographics 1996; 16:309-320
4. Guibaud L, Bret PM, Reinhold C, Atri M, Barkun AN. Bile duct obstruction and choledocholithiasis: diagnosis with MR cholangiography. Radiology 1995; 197:109-115
5. Regan F, Fradin J, Khazan R, Bohlman M, Magnuson T. Choledocholithiasis: evaluation with MR cholangiography. AJR Am J Roentgenol 1996; 167:1441-1445
6. Taourel P, Bret PM, Reinhold C, Barkun AN, Atri M. Anatomic variants of the biliary tree: diagnosis with MR cholangiopancreatography. Radiology 1996; 199:521-527
7. Fulcher AS, Turner MA, Capps GW, et al. Half-Fourier RARE MR cholangiopancreatography: experience in 300 subjects. Radiology 1998; 207:21-32
8. Hirohashi S, Hirohashi R, Uchida H, Akira M, Itoh T, Haku E, Ohishi H. Pancreatitis: evaluation with MR cholangiopancreatography in children. Radiology 1997; 203:411-415.
9. Matos C, Metens T, Deviere J et al. Pancreatic duct: morphologic and functional evaluation with dynamic MR pancreatography after secretin stimulation. Radiology 1997; 203:435-441
10. Lam WW, LamTP, Saing H et al. MR cholangiography and CT cholangiography of pediatric patients with choledochal cysts. AJR 1999; 173:401-405.
11. Irie H, Honda H, Jimi M et al. Value of MR cholangiopancreatography in evaluating choledochal cysts. AJR 1998; 171:1381-1385.
12. Alampady Krishna Prasad Shanbhogue, Sree Harsha Tirumani, Srinivasa R. Prasad et al. Benign Biliary Strictures: A Current Comprehensive Clinical and Imaging Review. AJR 2011; 197:W295–W306
13. Frank Miller, Anna K L, Kshitij D et al. Pictorial Essay: MRI of Pancreatitis and its Complications: Part 2, Chronic Pancreatitis. AJR 2004; 183: 1645 -1652
14. Nisha I. Sainani, Onofrio A. Catalano, Nagaraj-Setty Holalkere et al. Cholangiocarcinoma: Current and Novel Imaging Techniques. RadioGraphics 2008; 28:1263–1287

ORIGINAL ARTICLE

Assessment of Effect of Cardio-Pulmonary resuscitation (CPR) training for medical personnel through Objective Structured Practical Examination (OSPE)

Basavaraj Anita, Jamkar Maya, Rao S.P., Pande, G. Kulkarni Rahul and Kadam Dilip B.

B J Medical College, Pune

ABSTRACT

An objective oriented skill transfer training program has been conducted on basic skill of Cardio-Pulmonary Resuscitation (CPR) among basic doctors(MBBS), post graduates and specialists working at the medical college hospital. The conceptual background of CPR was explained and later skills were demonstrated. A pre and post tests were performed for knowledge and skills. The skill assessment was carried out through Objective structured Practical examination (OSPE).

Hence BLS workshop is essential to improve knowledge and skill of CPR.Cardio-Pulmonary Resuscitation (CPR) is an important essential skill expected in all health care personnel in particular doctors. However, the technicalities involved in administration of CPR have taken a back seat in the last few years of undergraduate and post graduate training.

Introduction

Cardio-Pulmonary Resuscitation CPR technique is external chest compression to provide circulation of blood to the brain and heart after cardiac arrest. Cardio Pulmonary Resuscitation (CPR) and early defibrillation might be useful to improve the survival and neurologic outcomes. CPR training is an integral and essential component of medical training in India. However, medical graduates need to know and reinforce the skills they had learnt during their medical school training. However, the traditional method and their components priority have been altered recently. The importance of chest compression is being recognized as the potent life saving measure among victims of heart attack. Medical professionals need to be educated frequently to understand the advances and to incorporate these vital changes into their practice

The skill acquisition is better assessed through Objective Structured Practical Examination (OSPE), performed on mannequins. Through OSPE, the skill deficient area can be easily identified and repeat training can be imparted.

The objectiveof this study was to determine the level of awareness of CPR amongdoctors, its knowledge & practice in hospital settings and also to assess the effect of objective oriented CPR training in skill acquisition and improvement in knowledge.

Materials and methods

This exercise has been undertaken to assess the effect of CPR skill training in enhancing the knowledge and skills of CPR among medical professionals through Objective Structured Practical Examination. Training session based on the didactic lecture and demonstration of skills on mannequin followed by interactive session was organized. This was followed by the demonstration of techniques of intubation, and chest compressions by the competent experience trainers. A Four stage method of imparting the knowledge & skills should be adopted in case of Adult trainees. (Stage I: Silent demonstration of the skill; Stage II: Repeat performance with dialogue explaining the reasons for each step undertaken during the procedure; Stage III: Repeat demonstration guided by one of the trainees; Stage IV: Repeat demonstration by the trainee and practice of the skill by all the trainees)

A pre-post test method to assess the knowledge followed

Address for correspondence:
Basavaraj Anita, B J Medical College, Pune

by Objective Structured Clinical Examination on mannequin was carried out to assess the skills gained during the training session

Results & Discussion

Fifty three medical graduates and specialists attended the CPR training session. The participants were categorized as Graduates, post graduate students and specialists. Out of 53 participants who underwent CPR training, only 27 were present for post training evaluation by OSPE (51%). The pre and post test details are detailed in Figure I. The number of graduate doctors participated in the pre-post test assessment of OSPE are more compared to the specialist doctors. Figure II explains the previous experience status of the trainees. Twenty percent of the graduates, and post graduate students and 7% of specialists had experience of administering the CPR.

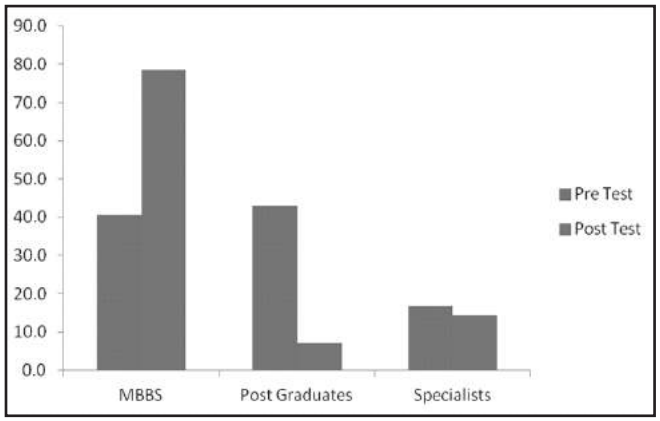


Fig I: Percentage of Categories of Doctors Participated in Pre & Post Test evaluation

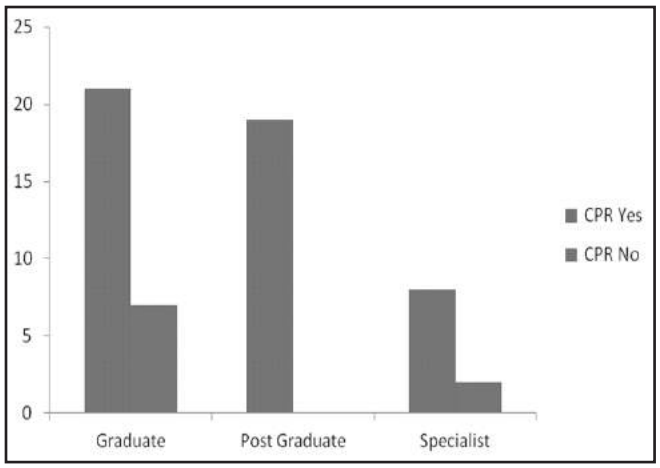


Fig II: Pretest Experience of Administration of CPR

according to the Qualification

The knowledge regarding the various components of CPR were assessed through semi-closed and closed questions. The assessment scores were depicted in Table I. Only 48% of the trainees were confident of administering CPR to critically ill needy patients. However, the assessment of various components of CPR showed poor to excellent scores (25-95%).

S No	Criteria	Positive/appropriate response (%) out of total	Out of 27, number of candidates attempted
1	Are You confident of administering CPR	13 (48.0)	13
2	Correct Ratio of Compression to Breath	9 (33.3)	13
3	Correct Method to open airway	24(88.8)	27
4	Current Trend of CAB	25 (95.6)	27
5	The Three 'C's	15(25.6)	25
6	Action to be taken if person with chest pain becomes unconscious	4 (14.8)	22
7	What will you do if you find unconscious victim in room	7 (25.9)	22
8	Reasons for CPR to start immediately	17 (62.9)	27

Table I: Post test results & Scores of Various CPR criteria among Trainees.

The improvement in scores in knowledge was shown in Table II. The assessment showed marked improvement in knowledge (60-100%). The improvement in confidence levels of the trainees to administer CPR is shown in Table III. The OSPE skills before and after were assessed and are shown in Table IV. All the respondents attained in most of the areas of the OSPE except few areas such as check danger signs, Turns the patients to left lateral position and clear airway, check carotid circulation and should be carried out with 2 persons.

S No	Abbreviation	Expanded correctly		Total Trainees attempted	
		Pre Test	Post Test	Pre	Post
1	CPR	53 (100.0)	27 (100.0)	53	27
2	ECC	16 (61.5)	23 (88.5)	26	26
3	BLS	31 (100.0)	27 (100.0)	31	27
4	AED	7 (58.3)	9 (60.0)	12	15
5	FBAO	12 (100.0)	23 (100.0)	12	23
6	RAP ABCD	1 (11.1)	16 (69.6)	9	23

Table II: Assessment of Definitions of Abbreviations commonly used in CPR

Ability to administer CPR	Before Training N=67		After Training N=27	
	ABC	CAB	ABC	CAB
I Need Help		1		
No	4	1		
Not yet Confident	1			
Yes	15	13	2	25
Not Attempted	32		0	

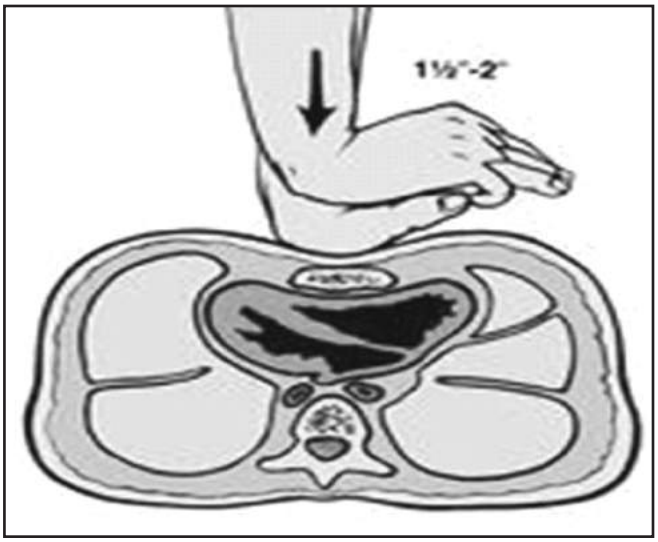
Table III: Components of Skill Assessment among the trainees

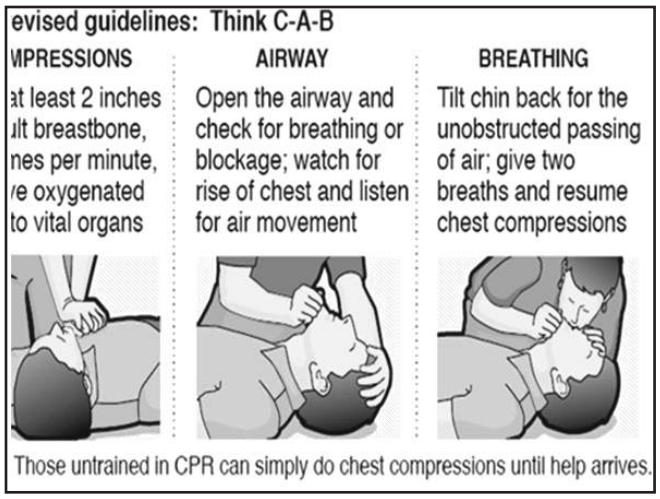
No	Criteria	Assessment Scores (Max=16)	
		Pre Training (n=16)	Post training (n=7)
1	Check Danger Signs	1	0
2	Check Patient's Response	3	7
3	Calls for Help	1	5
4	Turns the patients to left lateral position and clear airway	0	4
5	Head tilt, chin lift to maintain airway	0	7
6	Checks breathing(look, Listen, Feel)	3	7
7	Turns the patient on back if not breathing	2	0
8	Administer 2 full inflations (2 set/ inflation)	14	5
9	Check Carotid circulation	1	1
10	Start compressions with air rescue mask	13	7
11	4-5 cms deep movements on sternum (no rocking, thumping)	13	6
12	2 inflations to 15 compressions every 15 seconds(aim for 80-100/min)	10	7
13	Check for return of Pulse after 1 minute; then every 2 minutes onward	3	1
14	Left lateral position if successful	0	0
15	Indicate you need assistance with 2 person technique	3	0
16	Should be carried out with 2 persons	2	0

Table IV: OSPE Skill Assessment Scores (Post Training)

Conclusions

In conclusion, it can be said that there is general lack of awareness and skill among medical professionals regarding the components of CPR .After the training, the improvement in knowledge is satisfactory. The post graduates and Specialists shy away from answering the assessment questions. There is a large dropout (only 27 out of 57 trainees attended) in the number of trainees who appeared for post test. The limitation of the study is the dropout rate. The Skill assessment showed improvement. It implies that a more rigorous and suitable training course has to be devised to impart skills required for CPR.




evised guidelines: Think C-A-B
MPRESSIONS
at least 2 inches
lt breastbone,
nes per minute,
/e oxygenated
to vital organs
AIRWAY
Open the airway and check for breathing or blockage; watch for rise of chest and listen for air movement
BREATHING
Tilt chin back for the unobstructed passing of air; give two breaths and resume chest compressions
Those untrained in CPR can simply do chest compressions until help arrives.


Airway management

ORIGINAL ARTICLE

A Comparative study of blood levels of MDA and Vitamin C in smokers and non smokers

Nahar Pradeep, Shah Swati, Kowale Arun, Chandanwale Ajay, Zingade Urjita, Patil Hemkant, Jain Sonal

Department of Physiology and Biochemistry, B.J. Medical College,Pune and VMMC,Solapur

ABSTRACT

BACKGROUND: It is a well-known fact that there is increased oxidative stress and decreased serum antioxidant levels in smokers than in non-smokers. In this study, the aim was to compare the serum levels of malondialdehyde (MDA), which is an important lipid peroxidation product and vitamin C, which is an antioxidant, between non- smokers (Group A) and chronic smokers(Group B) .

METHODS: 50 non-smokers and 50 chronic smokers appropriately matched with BMI were selected. Fasting blood sample was collected in group A and group B. Serum levels of MDA and vitamin C were estimated. Statistical analysis was done by t test using SPSS version 11.Value of $p< 0.05$ was considered statistically significant.

RESULTS: MDA and vitamin C levels were compared between Group A and Group B. There was a highly significant rise in MDA ($p<0.0001$) and significant decrease in vitamin C ($p<0.01$) in Group B compared to Group A.

CONCLUSION: There was increase in oxidative stress and decrease in antioxidant levels in chronic smokers compared to non-smokers.

KEYWORDS: Chronic smokers, MDA, Vitamin C.

Introduction

Tmoking is a potent but modifiable risk factor of cancer, Chronic Obstructive Pulmonary Disease (COPD) and cardiovascular diseases. It acts via reactive species to initiate and promote pathology and is consistently associated with elevated oxidative damage to DNA, lipids and proteins in the body. [1,2] It was estimated that a single cigarette puff contains approximately 10^{14} free radicals in tar phase and 10^{15} radicals in the gas phase. These are capable of causing an increase in the generation of various reactive oxygen species (ROS) like superoxide (O^{-} 2), hydrogen peroxide (H202), hydroxyl (OH-) and peroxide (ROO-) radicals. These reactive oxygen species in turn are capable of initiating and promoting oxidative damage in the form of lipid peroxidation.[3,4]Vitamin C is a potent water soluble antioxidant because, by donating its electrons, it prevents other compounds from being oxidized. The species formed after the loss of one electron is a free radical. Semidehydroascorbic acid or ascorbonyl radical is a reactive and possibly harmful free radical. Many studies have demonstrated low plasma concentration of vitamin C in smokers .[5,6,7]

In this context, the present study was undertaken to compare the serum levels of lipid peroxidation product malondialdehyde (MDA) and antioxidant vitamin C in non-smokers (Group A) and chronic smokers (Group B)

Methods

Informed consent was obtained from all the subjects. Fifty chronic smoker males, who smoked more than 10 cigarettes per day for more than 10 years, were selected. Fifty controls, who were healthy non-smokermales, were included after appropriate age matching. It was confirmed that the controls are not exposed to passive smoking also. Those excluded from the study were persons abusing alcohol, ex-smokers, patients with diabetes mellitus, hypertension, renal diseases, hepatic impairment, endocrine disorders, obese individuals and patients on drugs like multivitamins.

Each subject was interviewed and information about demographic details and smoking was obtained. The demographic details included age, body weight, and body mass index (BMI). Both systolic blood pressure (SBP) and diastolic blood pressure (DBP) were recorded. Smoking habit included smoking period and number of cigarettes smoked daily.

Address for correspondence:
Nahar Pradeep, Department of Physiology and Biochemistry, B.J. Medical College, Pune and VMMC, Solapur

Fasting venous blood sample was collected in all subjects. Serum was separated and analyzed for the following parameters. Levels of MDA were measured by thiobarbituric acid reactive substances assay (TBRAS) method [8] and ascorbic acid (Vitamin C) were measured by dinitrophenyl hydrazine (DNPH) method.[9] The optical densities of MDA and ascorbic acid were measured at 532 nm and 520nm, respectively, using spectrophotometer. Statistical analysis was done by 't' test using SPSS version 11. $p< 0.05$ was considered statistically significant. The results were expressed as Mean ± SD.

Results

The demographic characteristics of all subjects are shown in Table 1. There was no significant difference in mean age, body weight and BMI among two Groups.

Table 1: Comparison of baseline characteristics of Non smokers and Smokers

Parameter	Non smokers (group A)	Smokers (group B)
Age (Yrs) BMI Smoking Period (yrs)	43 ± 4.2 26.33 ± 2.3	41.2 ± 2.9 25.8 ± 2.1 10 ± 1.3
No. of cigarettes smoke daily		11 ± 1.89

Table 2 shows the serum levels of MDA and vitamin C in non-smokers (Group A) and chronic smokers (Group B). The MDA of Group A was 230 ± 2.50 nmol/l and in Group B was 462 ± 4.67 nmol/l. The mean vitamin C in Group A was 1.29 ± 0.26 mg/dl and that of Group B was 0.87 ± 0.2 mg/dl. MDA was significantly higher ($p<0.0001$) in Group B compared to Group A. Vitamin C level was significantly lower ($p<0.01$) in Group B than in Group A.

Table 2: Comparison of serum levels of MDA and Vitamin C in Non smoker and Smoker

Parameter	Non smoker (group A)	Smoker (group B)	P value
MDA (nmol/l) Vit C (mg/dl)	230 ± 2.5 1.29 ± 0.26	462 ± 4.67 0.87 ± 0.2	P <0.001* P <0.001*

Discussion

The present study showed that there was a significant elevation of serum MDA levels ($p<0.0001$) and significant decrease in serum ascorbic acid levels ($p<0.01$) in chronic smokers compared to non-smokers.

Cigarette smoking leads to the uptake of many hazardous compounds or their metabo-lites which may be electrophilic and thereby, able to react with biological macromolecules, or they may give rise to oxidative stress by formation of reactive oxygen species (ROS).[10] Hence, there is an increased level of lipid peroxidation product MDA in chronic smokers compared to the non-smokers.

Smoking of 10 cigarettes daily on an average, for 6-8 years is associated with enhanced lymphocyte DNA strand breaks. Also smoking was co-related with lower activities of principal antioxidants in the plasma mainly vitamin C. [2]

Epidemiologic studies showed that cigarette smokers consume fewer fruits, vegetables and vitamin supplementation than do nonsmokers and this leads to low serum P/S ratio (polyunsaturated fatty acids/saturated fatty acids)[11] which in turn results in a status of increased oxidative stress and decreased antioxidant capacity, as observed in the present study.It is difficult to determine whether differences in the plasma vitamin C between smokers and non-smokers are actually due to the effect of cigarette smoke exposure or due to differences in dietary intake of antioxidants or in other covariates .[5,11]

Conclusion

The present findings indicated that cigarette smokers have higher lipid peroxidation levels and lower antioxidant capacity compared to non-smokers.

References

1. Pasupathi P, Saravanan G, Farook J. Oxidative Stress Bio Markers And Antioxidant Status In Cigarette Smokers Compared To Nonsmokers. Journal of Pharmaceutical Sciences and Research 2009; 1(2): 16-21.
2. Li N, Jia X, Chen CY, Blumberg JB, Song Y ,Zhang W, et al. Almond consumption reduces oxidative DNA damage and lipid peroxidation in male smokers. J Nutr 2007; 137(12): 2717-22.
3. Akbari ZA, Bhatti MS, Shakoor M. Lipid profile in smoking. JAMC 2000; 12(3): 19-21.
4. Ambrose JA, Barua RS. The pathophysiology of cigarette smoking an cardiovascular disease: an update. J Am CollCardiol 2004; 43(10): 1731-7.
5. Rumley AG, Woodward M, Rumley A, Rumley J, Lowe

GD. Plasma lipid peroxides: relationships to cardiovascular risk factors and prevalent cardiovascular disease. QJM 2004; 97(12): 809-16.

6. Bloomer RJ. Decreased blood antioxidant capacity and increased lipid peroxidation in young cigarette smokers compared to nonsmokers: Impact of dietary intake. Nutr J 2007; 6: 39.
7. Padayatty S, Katz A, Wang Y, Eck P, Kwon O, Lee JH, et al. Vitamin C as an antioxidant: evaluation of its role in disease prevention. J Am CollNutr 2003; 22(1): 18-35.
8. Draper HH, Hadley M. Malondialdehyde determination as index of lipid peroxidation. Methods Enzymol 1990; 186: 421-31.
9. Rifai N, Bachorik PS, Albers JJ. Lipids and Lipoprotein and apolipoprotein. In: Burtis CA, Ashwood ER, editors. Tietz Textbook of clinical chemistry. 3rd ed. Philadelphia: Saunders; 1999. p. 809-61.
10. Pasupati P, Yegneshwar Rao Y, Farooq J et al. Effect of cigarette smoking on lipids and oxidative stress biomarkers in patients with Acute myocardial infarction. Research Journal of Medicine and Medical Sciences 2009; 4 (2):151-9.
11. Dietrich M, Block G, Norkus EP, Hudes M, Traber MG, Cross CE, et al. Smoking and exposure to environmental tobacco smoke decrease some plasma antioxidants and increase gamma-tocopherol in vivo after adjustment for dietary antioxidant intakes. Am J ClinNutr 2003; 77(1): 160-6.

REVIEW

Current Trends In Common Malignancies In Females

Kulkarni K K.

Associate Professor, Department of Pathology, BJGMC, Pune.

Introduction

Cancer affects all communities worldwide. Though it is the second leading cause of death whereas in developing countries it is third, the Five year survival rates have shown remarkable improvement especially in developed countries.

Large variations in both cancer frequency & case fatality are observed in different regions of the world for men & women. The burden of cancer is distributed unequally between developed & developing countries. The cancer burden associated with western lifestyle is highest in affluent societies of developed countries i.e. cancers of lung, colorectum, breast & prostate. In developing countries upto 25% tumors are associated with chronic infections eg. Hepatitis B, HPV, H. pylori etc.[1]

The most conspicuous feature of the distribution of cancer between the sexes is the male predominance of lung cancer & carcinoma breast in females. The 5 most frequent cancers sequentially in males are lung, prostate, colorectum, stomach & liver while in females they are breast, colorectum, cervix uteri, stomach & liver. Contrary to the world trend the commonest cancers in males in India are lungs, lip/oral cavity, pharynx, esophagus& stomach while in females they are cervix, breast, mouth/ oropharynx &esophagus. While in recent years it has been observed that breast cancer has overtaken cancer cervix as the most common cancer in females in metropolitan cities in India owing to their westernisation of lifestyle.[2] The difference in distributions between the sexes are attributable to differences in exposure to causative agents rather than to variations in susceptibility.[1]

So, in the present article we will be discussing common malignancies in females & newer aspects of these malignancies.

Changing trends in Incidence

Cancer incidence is usually measured as the number of new cases each year for every 100,000 people (for gender specific cancers, people of the same gender serve as the denominator) & age adjusted (to a standard population) to allow comparisons over time.[3]

One in ten of all new cancers diagnosed worldwide each year is a cancer of female breast & it is the most common cancer in women in both developing & developed areas. As a consequence of changing exposures to reproductive & nutrition related determinants over time, women are at increasingly high risk of breast cancer with incidence rates increasing in most countries & regions of the world in the past few decades. The most rapid rises are seen in developing countries where breast cancer risk has historically been low relative to industrialised countries. Increasing trends in developing areas are often considered the result of 'westernisation' of lifestyles, an illdefined surrogate for changes in factors such as late child bearing, dietary habits & exposure to exogenous estrogens, towards a distribution closer in profile to that of women in industrialised countries. Breast cancer rates fell more substantially in urban & low poverty affluent countries than in rural or high poverty countries. These patterns likely reflect a major influence of reductions in hormone therapy use but cannot exclude possible effects due to screening patterns, particularly among rural populations where hormone therapy use was less prevalent.[4]

Cervical cancer is the third most commonly diagnosed cancer & the fourth leading cause of cancer death in women worldwide. Persistent infection with 15 high risk HPV types is the major risk factor for cervical

Address for correspondence:
Kulkarni K K., Associate Professor, Department of Pathology, BJGMC, Pune.

cancer with HPV 16 & 18 infections accounting for about 70% of total cases, multiple sexual partners, younger age at first sexual intercourse, immunosuppression & cigarette smoking serve as cofactors to HPV persistent infection & progression to cancer. The large regional variations in cervical cancer rates reflects geographic differences in HPV prevalence &/or the availability of PAP test screening that allows the detection & removal of precancerous lesions. The rates have decreased in high risk areas including China, Taiwan, Korea & India in part due to improved screening activities & socioeconomic conditions, although the decreases in proportionate terms were much smaller compared with those in western countries.[5] In recent years, India has shown significant decrease in incidence of cancer cervix including in all the major cities.[2]

Lung cancer is the second leading cause of cancer deaths in women. International variations in lung cancer rates & trends largely reflects the differences in the stage & degree of tobacco epidemic because smoking accounts for about 50% of deaths in women. In several western countries where tobacco epidemic was established & peaked by the middle of last century, lung cancer rates have been plateauing in women. In contrast where the epidemic has been established more recently including several developing countries, lung cancer rates are increasing & they are likely to continue to increase atleast for the next few decades. India especially in its metropolitan cities has shown significant increase in lung cancer incidence in past few years.[2] Environmental exposures other than smoking that may contribute to regional variations in lung cancer rates include radon & asbestos, certain metals (chromium, cadmium, arsenic), some organic chemicals, radiation, air pollution, coal smoke & indoor emissions from burning other fuels.[5]

Developing countries like India has shown a gradual rise in incidences in other common malignancies in females like carcinoma endometrium & ovary in last decade.[2]

Newer diagnosing modalities

Apart from commonly used diagnosing modalities for cancers, the recent explosion of knowledge about the molecular charactreistics of tumors proposes a different approach. This has important implications in treatment & prognosis of different cancers.

Breast cancer is a multifaceted disease with distinct biological subtypes. HER2, ER & PR receptors are the three most common diagnostic markers that drive the clinical management of breast cancer patients. Tumor cell expression of these receptors has implications in disease progression as well as specific the rapeautic interventions. So, these biomarker phenotypes can be grouped into four tumor categories with different histological characteristics:

Luminal-A: ER+ and/or PR+/ HER2, Luminal-B: ER+ and/or PR+/ HER2+, HER2 overexpressed: ER-/ PR-/ HER2+, Triple Negative (TN): ER-/ PR-/ HER2-

The TN subtype is linked to aggressive cancers, metastasis, negative clinical outcomes & is also frequently observed in BRCA1 related breast cancers.[6]

Hence, similar such approach is needed for other cancers as it has important implications in guiding their diagnosis, treatment & prognosis.

Changing trends in cancer therapy based on molecularly defined cancer classification:

Till recently, treatments for cancer & basic, translational & clinical research are essentially designed based on the organ of the body in which the cancer is originally observed. However, global gene expression & genomic &pregenomic analyses using high throughput technologies have helped to elucidate the molecular charactristics of cancer, providing a new angle to oncology. Individual tumors generated within the same organ show an enormous diversity of biologic behaviour, clinical prognosis, sensitivity to treatment & therapeutic targets. Moreover tumors from different sites share important features relative to oncogenic mutations &tumor microenvironments of crucial relevance for cancer treatment. So, a different approach to cancer classification based on molecular characteristics of cancer will have important implications for cancer treatment & research.

Gene mutations present in tumors are classified into driver & passenger mutations. Driver mutations confer a selective advantage to the tumor & hence, their inactivation affects tumorigenesis. Passenger mutations are somatic mutations that do not confer a selective fitness advantage. They could theoretically be reversed with little or no effect on tumor progression. So, the

driver mutations constitute therapeutic targets while passenger mutations might be irrelevant for therapeutic purposes. [7]

Even when a tumor contains several driver mutations, a single one can have a crucial role & its inactivation can supress cancer. This phenomenon termed "oncogene addiction" provides a rationale for molecular targeted therapy. Different tumor types tend to have an increased propensity for specific driver mutations & alterations in same genes are detected in variety of other tumors. Moreover, driver mutations of the same genes can be present with low frequency in many different tumor types. Hence, the presence of driver mutations does not depend on the organ in which the tumor arises &tumors of different organs can be "addicted" to the same oncogene. More important different tumor types with the same oncogene 'addiction' respond to similar therapeutic strategies. [7]

Hence, following this rationale a different approach to the classification of cancer may have important implications for treatment & research.

Current trends in treatment apart from pertinent therapeutic modalities

Adjuvant therapy also known as adjuvant care is treatment that is given in addition to primary, main or initial treatment; for eg. Radiotherapy or systemic therapy is commonly given as adjuvant treatment after surgery for various cancers. Systemic therapy consists of chemotherapy, immunotherapy or biological response modifiers or hormone therapy.

The term neoadjuvant chemotherapy defines the use of cytotoxic chemotherapy or hormonal therapy prior to any other treatment, either radiation therapy or surgery.

Advantages: Reduction in the volume of primary tumor facilitates surgical intervention, reduces the extent of necessary surgical resection in many patients & extends indications of conservative therapy. It might reduce distant metastasis compared with classic adjuvant systemic chemotherapy. It might also assist in the selection of 'individualised' therapy through the early identification of treatment failures. Its another potential advantage is the determination of tumors' sensitivity to systemic therapy. If there is progressive growth of the primary tumor, the therapy is ineffective & so its administration can be interrupted to avoid unnecessary toxicity & to permit the introduction of different non-cross resistant regimen to enhance the probability of therapeutic success. [8]

In contrast post-operative adjuvant chemotherapy is a "blind" procedure because the markers of tumor activity have been removed & hence its efficacy cannot be monitored. It also provides an excellent experimental model to assess the molecular effects of treatment over the tumor.

Neoadjuvant chemotherapy (NACT) has certain disadvantages also like for tumors resistant to it, the appropriate local treatment is delayed, potentially compromising local control. It might increase the rate of severity of surgical or radiation therapy related complications. Because it profoundly alters the primary tumor& regional lymph nodes metastases, the ability to obtain an accurate baseline histopathological evaluation is also altered. [8]

So, weighing the risks versus benefits it is currently potentially used for many malignancies in females like breast, lungs & gynaecological cancers like cervical, ovarian, endometrial, vulvar & vaginal.

In carcinoma breast its main indications are Locally Advanced Breast Carcinoma (LABC) (stageIII), inflammatory carcinoma & some operable breast cancers (stage I & II). An additional relative indication is in the treatment of pregnant patients during 2nd& 3rd trimesters & advanced age also is not a contraindication. In majority of patients clinical responses were documented with pathologic complete response with no evidence of invasive carcinoma remaining in the breast &/or lymph nodes at the time of surgery. For those patients for whom NACT is contraindicated for medical reasons neoadjuvant hormonal therapy would be appropriate. [8]

In cases of carcinoma of cervix several studies revealed that giving NACT before surgery is effective in reducing tumor size, expediting micrometastasis treatment, improving operability & surgical downstaging. NACT virtually sterilize micrometastases in the paracervical tissues & pelvic lymph nodes. This effect allows for less extensive surgery of the cervix instead of radical hysterectomy in stage IB patients who desire to preserve fertility sparing. [9]

NACT was introduced as an alternative management

strategy in patients with advanced ovarian carcinoma approximately two decades ago. Initially the approach was used only for the patients who had significant comorbidities & could not tolerate the cytoreductive surgery. Later on, it has been advocated for the treatment of patients with multiple sites of metastases. Other advantages include a risk reduction of peri-operative morbidity & a higher rate of optimal resection than primary debulking surgery. [9] Many studies are being conducted for the role of NACT followed by interval cytoreductive surgery as a reasonable option for endometrial carcinoma with transperitoneal spread. To support these results further researches are required.

Recent dataindicate that NACT should now be considered the standard of care for treatment of patients with completely resected early stage Non small cell lung cancer with the single exception of patients with stage IA disease where the prognosis is relatively favourable. It may also downstage the disease before surgery & decrease perioperative tumor seeding & molecularly targeted approaches with neoadjuvant therapy appear promising.

It is well known that cytologists/ pathologists feel difficult to make definitive diagnosis of presence of cancer cells particularly benign versus malignant , high grade versus low grade etc. in specimens obtained after chemotherapy mainly due to cytologic changes of cancer cells induced by chemotherapy. They may sometimes cause confusion in terms of pathologic diagnosis & therefore inappropriate management.[10]

Hence, a meticulous gross & microscopic examination of post NACT specimen is required with ample sectioning to identify the small areas of residual viable tumor. The pathologist should be aware of the possible nuclear & cytoplasmic changes after NACT, which will certainly increase the diagnostic accuracy & cost effectiveness in clinicl practice. Immunohistochemistry with a panel of suitable biomarkers may be required to confirm the nature as well as histologic type of cancer cells. Additionally successful use of pathologic/ cytologic material to confirm the diagnosis after NACT requires excellent communication between the clinician & the pathologist.[10]

In conclusion, it is the need of an hour to focus our attention on these newer aspects responsible for various changing trends in common malignancies in females for better patient care.

Acknowledgements

Dr.Khushabu R Kabra (JRII, Dept. of Pathology, BJGMC, Pune, Dr. P. M. Parikh (Principal Investigator, Cancer Registry Division, Indian Cancer Society, Mumbai, India), Dr. Shravani S Koyande (Co-Principal Investigator, Cancer Registry Division, Indian Cancer Society, Mumbai, India)

References

1. Textbook of preventive & Social Medicine; 22nd edition; K. Park.
2. Time trends in cancer incidence rates:1982-2010; Cancer Registry Division, Indian Cancer Society, Mumbai, India)
3. National cancer Institute; Cancer Trends Progress Report- 2011/2012 update
4. Feddie Bray, Peter McCarron & D Maxwell Parkin; The changing global patterns of female breast cancer incidence & mortality; Breast cancer Res 2004, 6:229-239.
5. Ahmedin Jemal, Melissa M. Center, Carol De Santis et al; Global patterns of cancer incidence & mortality rates & trends; Cancer Epidemiol Biomarkers Prev 2010;19: 1893-1907.
6. Ana Patricia Ortiz, Orquidea Frias & Erick Suarez; Breast cancer molecular subtypes & survival in a hospital based sample in Puerto Rico; Cancer Med. 2013 June;2(3):343-350
7. Javier Cortes, EmilianoCalvo, Ana Vivancos; New approach to cancer therapy based on a molecularly defined cancer classification; CA Cancer J Clin 2014;64: 70-74.
8. Gordon F. Schwartz, Gabriel N.Hortobagyi; 2004 American Cancer Society; Proceedings of the consensus conference on Neoadjuvant Chemotherapy in carcinoma of the breast, April 26-28, 2003, Philadelphia, Pennsylvania: 2512-2531.
9. PrapapornSuprasert; Department of OB&GYN, Chiang Mai University; Neoadjuvant Chemotherapy in gynecologic cancers; www.intechopen.com: 59-68
10. Yiyingwang, Yuewang, WenxinZheng; Cytologic changes of ovarian epithelial cancers induced by neoadjuvant chemotherapy; Int J ClinexpPathol. 2013; 6(10): 2121-2128.

Ethics In Neonatology

Khadse Sandhya., Hiremath Ashwini

Department of Paediatrics, BJ Medical College, Pune

"Rarely have the processes and products of scientific medicine been as heralded and harangued, as lauded and condemned, as publicized and misunderstood as they have in the context of neonatal intensive care units…"

Introduction

Neonatal ethics include various set of questions and dilemmas which are often faced by the neonatologists while providing care. These may begin while the child is still in the womb and may be carried over till the grave. These may include decision-making while resuscitation process; severe prematurity; initiating or withdrawing life support system; active treatment versus palliative care; newborn with congenital anomalies or chronic severe debilitating conditions. At one spectrum lies the ethical and moral conundrum and on the other end are the modern developments in science and technology.

The Need For Ethics And Scenario In India

Neonatologists function in a crisis environment with lack of knowledge of the family being treated and the poor availability of resources in developing country like ours. Within the realm of professionalism, doctors are expected to demonstrate: a commitment to carrying out professional responsibilities and an adherence to ethical principles; compassion, integrity, and respect for others; responsiveness to patient needs that supersedes self-interest; accountability to patients, society, and the profession. Moreover in neonatology, our patients themselves do not have the capacity to give consent. Decisions need to be made in the "best interests" of the newborn keeping in mind the feelings and the need for the family. Any lack of ethics-knowledge, available resources and technology, poor communication skills can lead the treating doctor into serious trouble as there is a very thin line between the ethics and legal issues.

The Important Issues

1. Extreme Prematurity And The Resuscutation Policies: Life-to Give Or Not To Give:

The "gray zone" of peri-viability encountered most frequently during the resuscitative attempts is the first confusion where we are required to make quick and fruitful decisions. From the time of birth, all the rights that adults possess also applies to neonates including the right to life and right to the best possible medical care. However, it can be difficult to predict whether an individual baby will have a limited lifespan and the extent to which he or she will recover from any health problems or develop disabilities. This means that families and health professionals sometimes have to make complex andemotionally taxing decisions. Major improvements in medical care mean that extremely premature and very ill babies have better chances of survival and making a good recovery. Decisions about treatment do not just concern premature babies.

There are guidelines provided concerning the premature babies.

Before 22 weeks-Any intervention at this stage is experimental. Attempts to resuscitate should only take placewithin a clinical research study that has been assessed and approved by a research ethics Committee and with informed parental consent.

Between 22 weeks-25 weeks:

Standard practice should be not to resuscitate the baby. Resuscitation should only be attempted and intensive

Address for correspondence:
Khadse Sandhya, Department of Paediatrics, BJ Medical College, Pune

care offered if parents request resuscitation, and reiterate this request, after thorough discussion with an experienced pediatrician about the risks and long-term outcomes, and if the clinicians agree that it is in the baby's best interests.

At 25 weeks and above:

Intensive care should be initiated and the baby admitted to a neonatal intensive care unit, unless he or she is known to be affected by some severe abnormality incompatible with any significant period of survival.

On the whole, practice should be to resuscitate a baby if the outcome is uncertain and provide intensive care until the outlook is clearer.

2. Hypoxic Babies Or Infants With Chronic Debilitating Illness:

Babies born at any gestational age can have brain injury, acquired during pregnancy or the birth itself, or, rarely, an abnormality of brain structure that remained undetected until after birth. A range of serious congenital anamolies can be seen. In such conditions both the immediate and long term outcome with proper counseling regarding the available treatment options should be provided to parents. In case of hypoxic injuries, proper perinatal and natal records should be obtained and checked as it becomes a matter of litigation.

3. Continuing Treatment Or Deliberately Ending Life:

In case of prolonged illness having poor outcome, the parents reach a level of exhaustion due to the mental crisis and financial difficulties. In such times it is the responsibility of the treating doctor to support the parents morally meanwhile explaining both long term and short term prognosis of the child and all possibilities of treating the child. A number of questions should be considered:

- What degree of pain, suffering and mental distress will the treatment inflict on the child?
- What benefits will the future child get from the treatment, for example, will the child be able to survive independently of life support.
- What are the views and feelings of the parents as to the interests of the baby?
- For how much longer is it likely that the baby will survive if life-sustaining treatment is continued?

A) Decision making:

Parents are generally considered to have the moral authority to make decisions in their child's best interests in all the circumstances of life, though not as if they owned them. They are often best placed to know what is in the interests of their child because they share a special bond that begins during pregnancy and develops over time. Legally, doctors must normally have the consent of parents before giving any treatment to a child. Doctors can only override parental wishes during an emergency or with the permission of law.

B) Deliberately ending life:

Taking intentional measures to end the life of a newborn baby is commonly regarded as aviolation of the duty to protect the life of the patient. This applies even when that baby's condition is extremely serious, with noprospect of survival or improvement. The professional obligation of doctors is to preserve life where they can. In developing countries like ours, it would compromise in a negative way the relationship between parents and doctors. Moreover our law doesn't permit any form of euthanasia.

C) Withdrawal of treatment:

The reasons are generally are: when intensive care is proving futile, in that death appears inevitable and when a baby has suffered a severe brain injury and for whom there appears to a very high risk of severe disability as he or she grows up or in case of a serious malformation, dysplasia or a genetic condition with serious outcome. Inconditions like brain death, measures like like withdrawing from ventilator can be justified.

D) Palliative care:

Once a decision has been made to withhold or withdraw treatment for a baby, or where there are no appropriate treatments, palliative care should be provided. The main focus of palliative care is the relief of pain and other distressing symptoms which has to be provided in every case.

4. DECLARATION OF DEATH-Breaking the bad news:

Day to day explanation of condition of the baby helps in preventing various allegations and also agitation of the relatives. Good communication skills are very much

essential. Confirmation of the death prior to informing is needed. Bad news has to be handled very carefully while supporting the parents takes the emotional toll. The treating doctor has to be the person but in certain conditions more experienced person like the staff nurse or the senior person would be wise.

Recommendations While Decision Making And Thus Avoiding Legal Issues:

1. Involving parents in decision making is of utmost importance. Their role should be decided prior hand and all the support made available.
2. Individualizing prognosis for each newborn helps in offering best possible way.
3. Every institution should have its own written set of guidelines.
4. Treating doctor should know the available resources in the vicinity. In the developing country like ours, the resources available should be considered while treating multiple newborns and keeping in mind the risk-benefit ratio while treating an individual in the NICU setup.
5. Decisions are made on the basis of up-to-date medical knowledge.
6. Avoiding courts: Clinical ethics committees could be involved or professional mediators could be appointed to help the parties who disagree find a resolution. If resolution is not possible, mediation could reduce bad feeling, or narrow down the issues that need to be addressed by the courts.
7. Training: Healthcare professionals are sometimes not well informed about the legal framework within which they work. So it is recommended that educational laws and training programmes be undertaken to educate every medical professional in neonatal medicine.
8. Improving communication skills of medical professionals.
9. Major improvements in technology and medicine mean that nowadays pregnant women are offered a range of tests, scans and screening procedures, and the results provide great reassurance for many. Doctors should ensure that the woman knows the outcome of the affected fetus and choice of continuing pregnancy or termination is left to the women's will.
10. The medical body and the government should follow up the survived critically disabled babies and provide them the best possible rehabilitation care.

Conclusion

Medical ethics play an important role while giving the best treatment and also to avoid legal conflicts. It is a complex web which includes moral, social and legal responsibilities of the treating doctor and the emotions, values and situation of the family involved limited by the availability of time and resources. The centre point is the decision making in various aspects. Keeping in mind all the above, the doctor should plan realistic goals for individual child with the consent of the family and society. This requires time and thoughtful reflection while communicating with families and advocating for the patient's benefit. Consider the potential value of guidelines in the process of working through common or recurring problems, ethical or otherwise, in the nursery and hospital. In so doing, the good that individual healthcare professionals perform may become more evident to themselves, their colleagues, and their patients.

Along with the individual treating doctors, there is need of the institution, state and national bodies to join hands together in developing guidelines for neonatal ethics at all levels of health care thus providing the guiding light for the physicians and hope for the family and the child.

References

1. Walther FJ. Withholding treatment, withdrawing treatment, and palliative care in the neonatal intensive care unit. Early Hum Dev. 2005; 81:965–972.
2. Ranson D.The “born alive” rule. J Law Med. 2006;13:285–288.
3. Avery's book of Neonatology.
4. Mukesh Birla. Medico legal and ethical issues in newborn care: Text book of medico legalissues, jaypee publication.2012;171-173
5. Sklansky M. Neonatal euthanasia: moral considerations and criminal liability. J Med Ethics.2001;27:5–11.
6. Tooley M. Decisions to terminate life and the concept of person. In: Ladd J, editor. Ethical Issues Relating to Life and Death. New York: Oxford University Press; 1979.
7. Strong C. The moral status of pre-embryo's, embryos,

fetuses, and infants. J Med Philos.1997;22:457–478.

8. Walters JW. Approaches to ethical decision making in the neonatal intensive care unit. Am J Dis Child. 1998;14:825–830.
9. Danis M, Gerrity MS, Southerland LI, Patrick DL. A comparison of patient, family, and physician assessments of the value of medical intensive care. Crit Care Med. 1988;16:594–600.
10. Fine RL, Whitfield JM, Carr BL, Mayo TW. Medical futility in the neonatal intensive care unit: hope for a resolution. Pediatrics. 2005;116:1219–1222.
11. Schneiderman LJ. Medical futility. Wien Klin Wochenschr. 1998;110:775–778.

REVIEW

The Fate of "Life on Petri Dish"

Kakrani Vandana, Pardeshi Geeta

Dr D Y Patil Medical College Pimpri & B J Government Medical College, Pune

History of Medicine is replete with examples of how a new technology considered to be a boon poses new challenges with its social and legal ramifications. A glaring example is ultra-sonographyleading to sex determination and declining sex ratio in India. Assisted Reproductive Technology (ART) is a new technology on the horizons which poses similar challenges. With Assisted Reproductive Technology (ART) life which normally begins in the mother's womb takes form on a petridish and as the procedure becomes morerampant, many new debatable aspects come to the forefront with a need to respond effectively without eroding its benefits.

Surrogacy

Fertility Tourism, Womb Renting, Creating Families, are some of the ways how the fertility experts in the field of Assisted Reproductive Technology (ART) are advertising the most natural phenomenon of human procreation. Is it ethical to commercially procreate human life involving money, is the question raised by many.[1]It is one of the main issues at the forefront of bioethics and ART. It is being adopted as a modern way of becoming "would be parents" in some primarily upscale professionals, with no financial constraints but have no time. Inability to bear children due to medical reasons is another indication for turning to gestational surrogates for those who wish to fulfill their dream of having a biologically connected child.

Surrogate literally means "substitute", therefore there are various instances where the term surrogate is used like surrogate key, surrogate markers, surrogate mothers, surrogate advertising, surrogate marrow etc. Surrogacy referred here is thus a form of assisted reproductive treatment in which a woman conceives and carries a baby in her uterus for another person or couple and then surrenders the child to that person or couple.

There can be various reasons due to which surrogate pregnancy is opted including the genuine medical indications. These can be in the form of infertility, inability to complete the term of pregnancy, uterine abnormalities or malfunctions or serious illness in woman where woman's own health is at stake due to pregnancy. It can be just an unwillingness to take the responsibility of pregnancy by a busy career oriented woman.

There are two types of surrogacy viz. *traditional/natural* and *gestational*. In traditional surrogacy, the surrogate is pregnant with her own biological child but this child was conceived with the intention of relinquishing the child to be raised by others such as the biological father and possibly his spouse/partner and thus the child that results is genetically related to the surrogate mother. In gestational surrogacy a surrogate is only a carrier/female host and is not genetically or biologically related to the child. The surrogate is implanted with an embryo that is not her own and becomes pregnant with a child to which she is not the biological mother. After birth, the surrogate relinquishes the child to the biological mother. The traditional surrogacy is more controversial than the gestational one, as there is a biological relationship between the child born and the surrogate mother.[2]

Procedure

The experts describe eight steps involved in surrogacy procedure.[3] The surrogacy procedure starts with the most important step i.e. a legal contract between surrogate mother and the intended parents after which the medical procedures can be started by the fertility experts. At first a complete medical examination along with hormone levels and sono-hysterogram is performed after which in-vitro fertilization procedures can begin."Egg Retrieval" procedure is then conducted for combination with intended father's sperm in the laboratory. The new

Address for correspondence:
Kakrani Vandana, Dr D Y Patil Medical College Pimpri & B J Government Medical College, Pune

embryo is cultivated for three to five days, which is then transferred to uterus of surrogate, already prepared for accepting the embryo by medications. Rest is needed for surrogate mother for 24-72 hrs following embryo transfer for implantation. After a period of 10 days, test is done to confirm the pregnancy when hormone support may be needed. At the end of 12 weeks fertility expert can send the woman to obstetrician of her choice for further care and monitoring of pregnancy.

There are some criteria laid down for potential surrogate mothers which include ensuring good physical and mental health of the mother. [2] The woman should have carried and delivered at least one child before signing the present procedure of surrogacy. The previous pregnancy should have been a full term without any complications. The recommended age of surrogate mother is less than 43 years to avoid any known effect of the advanced age on the fetus. She should not be a smoker or an alcoholic.

Health Risks

No procedure in the medical field can be free of any risks, so is the case with procedures involved with surrogacy. The risks are similar to those that may occur with all other methods of ART. The effect on the child born includes increased chances of premature birth, low birth weight baby and operative procedure due to multiple pregnancies. The surrogate is at risk of pregnancy and birth related complication like any other woman who is pregnant. Because of fertility drugs needed in the form of hormonal treatment, the egg provider can get reactions like hot flushes, feeling of depression or irritation, headaches, restlessness. Chance of risk of ovarian hyper-stimulation syndrome (OHSS) causing abdominal pain, nausea, vomiting, breathlessness, dizziness etc. cannot be ruled out. Besides difficulty in establishing bonding between mother and child, problems of breast-feeding arise as induced lactation in adopting mothers is not sufficient for exclusive breast feeding.[4,5,6] It has been reported that surrogate mothers are known to feel sad and distressed when relinquishing the child, at the same time they also feel happy and satisfied for the new parents for the baby. It is the responsibility of the agency involved in the process to tell the mothers to feel detached towards the fetus during pregnancy.[7]

Legal issues

The woman who has given birth to a baby is treated as mother; hence the surrogate mother has legal right to keep the child, even if it is not genetically related to her. Therefore the parenthood has to be legally transferred to intended mother through a parental order or adoption after the birth of the child. Trust is most important factor in the process as surrogate mother may change her mind to keep the child. *Parental Order* is the application made to court within six months of birth of child, to transfer the rights and obligations of parentage to intended parents. For this to be accepted, at least one of the commissioning couple must be genetically related to the baby i.e. egg or sperm provider. The other option for those commissioning couples when they are genetically related to the baby is procedure of *Adoption.* A registered adoption agency is to be involved in surrogacy process.[8]

Problems with unregulated surrogacy especially across the borders can lead to legal problems. The legal concerns include sex selection, health and rights of children born through surrogacy, issues of their citizenship, deprivation of mother's milk to these children etc.[9,10]Children can be denied nationality of the country, where they were born of the potential parents leading to long legal battle. Sometimes children may be disowned by the intended parents and without any authentic reason the children thus become orphans .[11]The tragic death of asurrogate mother highlighted the pitfalls of surrogacy in India.[12]

Every country has their own laws related to surrogacy, for example commercial surrogacy is not legal in England, Australia, and Canada where only *altruistic surrogacy* is recognized as legal i.e. only certain approved expenses for procedure and medication are permitted and reimbursed, any other money involved is illegal. In South Africa the contract about the fertilization between intended parents and the surrogate mother has to be validated by high court before any procedure is initiated. Japan and China have banned commercial surrogacy. While in Russia commercial surrogacy is legal on medical grounds. Commercial surrogacy in India is legal, and is a growing business due to availability of fertility experts at low cost and no language barrier which is attracting the potential parents from across the borders.[13]

Indian scenario

India being the most populous country with large number of fertility experts ready to oblige the potential parents, commercial surrogacy is booming. Women living in poverty become the soft targets, making available the surrogates easily; as the money received change the life of aspiring women who can get a good house, educate their children and improve the standard of living. It has been a booming business in states like Gujarat and Andhra Pradesh where it is a multimillion dollar industry.

Responding to the unregulated commercial surrogacy, the ICMR at the behest of the government of India has drafted legislation in 2008 framed as ART Regulation draft bill 2010, but it is still pending at the cabinet level.[14] Planning commission has recommended substantive changes in the law and advised ICMR to conduct wide consultations on the draft.

In spite of the basic guidelines for accreditation, supervision and regulation of ART clinics in India cases of violations are rampant. Exploitation of poor women continues, and with commercialization of medical services at its height in India, the possibility of growing number of cases where consent is not completely free of coercion, undue influence, fraud or misrepresentation cannot be ruled out. The situational analysis of surrogacy in India conducted by the Centre for Social Research highlights various ethical, philosophical and social issues related to surrogacy like neglect of the mother's health, lack of transparency in compensation paid to the surrogate mother, role of clinics etc.[15]

An important alternative way to help the childless couples is adoption, especially in a country where large numbers of children are orphans. In absence of a comprehensive adoption law which can be applicable to all citizens, irrespective of religion or the country from where they belong, this option of surrogacy through IVF becomes an easy procedure for the would be parents.[16]

It is high time that Indian government takes prompt action to prevent this rampant illegal commercial surrogacy, which should be replaced by only altruistic one where money involved is only that of medical costs and other related out of pocket expenses. According to a 2012 study by confederation of Indian industry (CII) this sector is worth $2 billion despite being completely unregulated. The CII study estimated that nearly 10000 foreign couples visit India for reproductive services and nearly 30 % are either single or homosexual. India has now taken steps to regulate the industry; the crucial draft of surrogacy bill may now disqualify homosexual couples, foreign single individuals and couples in live-in relationships from hiring surrogates to have children through surrogacy in India.[17]

Conclusion

With increasing commercialization more and more women are ready to undergo the surrogacy procedure not as a service of gifting a child but primarily for financial gains. In a country where illiteracy and poverty is rampant, coercion and miscommunication may result in exploitation of poor and ignorant women in India, using them as just "vehicle" compromising their dignity. Surrogacy in India is an example of height of outsourcing where it is cheap, easy, without any fear of being ditched by the woman who cannot afford to raise an additional child in her family. Besides, due to social stigma attached to it the whole procedure becomes hassle free.[18]

There is a need to make the general public aware about this noble cause of providing a life to those who are in need and get into the contract with the help of medical professionals andexperts in medical ethics and legal aspects. Various medical, emotional, financial, and legal issues need to be considered to **ensure that the life which begins on petri-dish results in a positive outcome** for all those involved in the procedure

References

1. Committee on Ethics. ACOG Committee opinion number 397, February 2008Accessed at http://www.acog.org/~/media/CommitteeOpinions/Committee on Ethics/co397.pdf
2. Overview of the surrogacy process Accessed at http://www.hrc.org/resources/entry/overview-of-the-surrogacy-process
3. 8 important medical procedures involved in surrogacy Accessed at http://surrogacypennsylvania.com/8-important-medical-procedures-involved-in-surrogacy accessed on 12-12-13.
4. National guidelines for accreditation supervision and regulation of ART clinics in India Accessed at http://www.icmr.nic.in/art/art_clinics.htm

5. Jacobsson B, Ladfors L, Milsom I Advanced maternal age and adverse perinatal outcome. Obstet Gynecol 2004;104:727-33
6. Points K. Commercial surrogacy and fertility tourism in India, The case of Baby Manji The Kenan Institute for Ethics at Duke University Accessed at http://web.duke.edu/Kenanethics/case studies.pdf accessed on 20 Nov 2014.
7. Hanjo et al-Antenatal depression and fetal attachment, Psychopathology,2003,36: 304-311.
8. Legal issues around surrogacy. Human Fertilisation Embryology Authority Accessed at http://www.hfea.gov.uk/1424 html on 1st Januray 2014
9. Dhar A. Surrogacy law will wait for experts to address critical issues. The Hindu.1 August ,2013 Accessed at http://www.thehindu.com/news/national/of-surrogacy-and-the-law/article4974192.ece
10. Voluntary Action Cell Planning Commission, Summary Record-Challenges posed by rising commercial surrogacy in India, 24th July 2013 Accessed at http://planningcommission.nic.in/data/ngo/csw_pres/csw_surrogacy0612.pdf
11. Bhandari P. Conceived in Japan, abandoned in Jaipur. The Times of India 6 August 2008.Times of India Accessed at http://articles.timesofindia.indiatimes.com/ 2008-08-06/jaipur/27946017_1_girl-child-surrogate-mother-ikufumi-yamada
12. Lal N. Pitfalls of surrogacy in India exposed accessed at http://www.timesonline.co.uk/toi/news/world/asia/article/711 3463.ecc
13. Annu, Pawan Kumar, DeepInder, Nandini Sharma. Surrogacy and women's right to health in India: Issues and perspectives, Ind Jour of Pub health,2013;57:65-70
14. ART regulation draft bill 2010 Accessed at: http://icmr.nic.in/guide/ARTREGULATION DRFTBill1.pdf last accessed on july 2013
15. Centre for Social Research Surrogate Motherhood-Ethical or Commercial Accessed at http://www.womenleadership.in/Csr/SurrogacyReport.pdf on 10th January 2014
16. Pikee Saxena, Archana Mishra, Sonia Malik Surrogacy: Ethical and Legal Issues. Ind.Jour of Comm. Med, 2012;37(4):211-13
17. Krishnan V. India's draft surrogacy Bill bars homosexuals, live-in couples Accessed at http://www.livemint.com/Politics/ZsS2zs7KvqHlk4FCguW0EN/Draft-surrogacy-Bill-bars-homosexuals-livein-couples.html Aug 2013 on 8th Nov 2013
18. Shetty P. India's unregulated surrogacy industry, The Lancet 2012;380:1633-34.

REVIEW

Dexmedetomidine: The Troubleshooter In Orthopaedic Anaesthesia

Jamkar MA, Page ND, Basavaraj P.

Introduction

Apart from anticipated or unanticipated prolongation of duration, orthopaedic procedures are best known for some peculiar challenges they pose to the anaesthesiologist. Of major concern are various patient positions to ease surgical access, hemodynamic perturbations due to major blood loss or non supine positions, polytrauma. Patients may present with facial trauma, head injury, cervical spine injury making conventional airway access difficult. Patient cooperation which is very crucial for several of our regional techniques (nerve blocks by paraesthesia technique, positioning for central neuraxial blocks etc) may not be possible due to multiple painful injuries making positioning difficult, geriatric or intoxicated patients. Day care surgery is an evolving subspecialty in itself. Certain orthopaedic procedures are short but extremely painful (closed reductions, extensive dressings) thus requiring deep anaesthesia, excellent analgesia but prompt, clear headed recovery. Tourniquet pain is particularly notorious as it is very difficult to control and may be associated with hemodynamic responses and extensive physiologic alterations. Shivering is a known problem in orthopaedic OT due to low OT temperatures, extensive prolonged procedures and major fluid shifts. There may be a need for preservation of intraoperative wakefulness in certain procedures like scoliosis repair and spine surgeries. Postoperative cognitive dysfunction is a known and preventable complication with a documented increased incidence in orthopaedic patients.

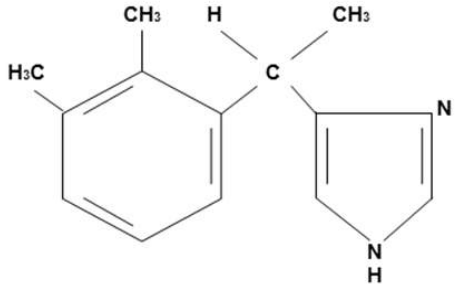
The α_2-adrenergic agonists provide sedation, anxiolysis, hypnosis, analgesia and sympatholysis. The initial impetus for the use of α_2 agonists in anesthesia resulted from observations made in patients during anesthesia who were receiving clonidine therapy. Medetomidine is an α2 agonist which was widely used in veterinary practice. Dexmedetomidine, a congener, is a more selective α_2 agonist with a 1600 greater selectivity for the α_2 receptor compared with the α_1 receptor. It was introduced in clinical practice in the United States in 1999 and approved by the FDA only as a short-term (<24 hours) sedative for mechanically ventilated adult ICU patients. Dexmedetomidine is now being used off-label outside of the ICU in various settings, including sedation and adjunct analgesia in the operating room, sedation in diagnostic and procedure units, and for other applications such as withdrawal/detoxification amelioration in adult and pediatric patients.[1]

Due to its widespread actions, this novel α2 agonist dexmedetomidine is like a boon to the anaesthesiologist , helping overcome many of the challenges encountered with minimal incidence of adverse reactions.

Pharmacology[2,3,4,5]

Chemical nature : It is (+)-4-(S)-[1-(2,3-dimethylphenyl)ethyl]-1H imidazole

Structural formula :



DEXMEDETOMIDINE

Address for correspondence:
Jamkar MA

Molecular formula	: $C_{13}H_{16}N_2$
Molecular weight of the base	: 200.27
Molecular weight of hydrochloride salt	: 236.7
pKa (25° C)	: 7.1
Protein binding	: 94%
Volume of distribution	: 118 liters
Clearance	: 39L/hr.
Distribution half-life	: 6mins
Elimination half-life	: 120mins
Solubility	: freely soluble in water

Pharmacokinetics

The elimination half-life of dexmedetomidine is approximately 2 hours with a rapid distribution half-life being approximately 6 min. It has a rapid onset of action. It undergoes biotransformation in the liver, and the kidney excretes 95% of its metabolites. The short half-life of dexmedetomidine makes it particularly suitable for intravenous infusion.

Metabolism

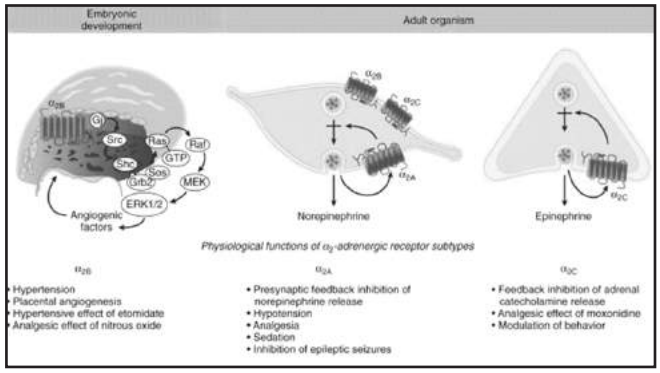
Undergoes almost complete biotransformation by direct glucuronidation, aliphatic hydroxylation by CYP2A6, and N-methylation.

Elimination Route

Excreted in urine (95%) and feces (4%).

Mechanism of action

α2-adrenoreceptor agonists act at pre- and postsynaptic adrenoceptors. The predominant α2-adrenoreceptor agonist subtype mediating sedative and antinociceptive actions is the α2A-adrenoceptor. Stimulation of α2B-adrenoceptor mediates the vasoconstrictive cardiovascular effect, which causes the initial hypertension. The α2C-adrenoreceptors subtype has been shown to modulate dopaminergic neurotransmission, hypothermia and a variety of behavioral responses. The hypnotic effect of dexmedetomidine is mediated by the hyperpolarization of noradrenergic neurons located in the locus ceruleus [65]. The locus ceruleus has been implicated as a key modulator for a variety of important brain functions, including arousal, sleep, anxiety and drug withdrawal associated with CNS depressants, like opioids



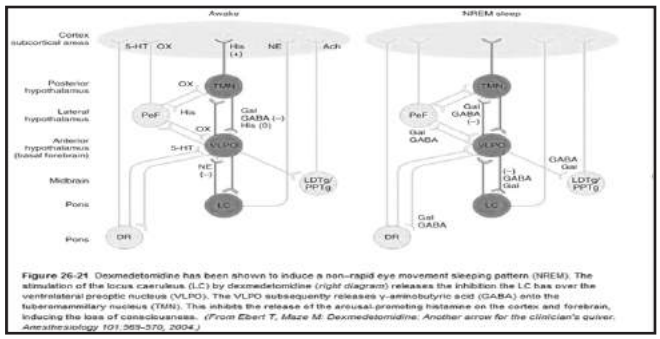


Figure 26-21 Dexmedetomidine has been shown to induce a non–rapid eye movement sleeping pattern (NREM). The stimulation of the locus caeruleus (LC) by dexmedetomidine (*right diagram*) releases the inhibition the LC has over the ventrolateral preoptic nucleus (VLPO). The VLPO subsequently releases γ-aminobutyric acid (GABA) onto the tuberomammillary nucleus (TMN). This inhibits the release of the arousal-promoting histamine on the cortex and forebrain, inducing the loss of consciousness. *(From Ebert T, Maze M: Dexmedetomidine: Another arrow for the clinician's quiver. Anesthesiology 101:563–570, 2004.)*

Dexmedetomidine as premedication

In the orthopaedic OT patients are frequently trauma patients who may be anxious and in a lot of pain. Also we frequently encounter geriatric patient with associated comorbidities. The sedative and anxiolytic properties of dexmedetomidine as well as sympatholytic characteristics make this drug of particular interest for premedication. Dexmedetomidine lowers the tachycardic response to endotracheal intubation and assures greater hemodynamic stability during the intraoperative period. It has the ability to reduce the anesthetic requirements for opioids as well as volatile and regional agents.[6,7,8] Several studies have demonstrated the beneficial effects of dexmedetomidine premedication in patients with coronary artery disease because it allows stable perioperative hemodynamics.

Dexmedetomidine as an adjuvant in general anaesthesia

Spine surgeries, or surgeries of highly vascular areas like humerus or redo surgeries require precise and titratable hemodynamic control in addition to intense analgesia

and sufficient depth. Dexmedetomidine may be a useful adjuvant during general anesthesia due to its sedative, hypnotic, analgesic and sympatholytic properties for the benefit of surgical patients by promoting hemodynamic stability and decreasing the doses of anesthetics and analgesics.[9,10,11] These effects of dexmedetomidine allow for an easily arousable, spontaneously breathing, calm and pain free patient at the end of surgery.

Ambulatory anaesthesia

Ambulatory anaesthesia and day care surgery has nowadays become the rule rather than the exception due to its many advantages like faster recovery and wound healing, better respiratory outcome, decreased chances of deep vein thrombosis and economical. In ambulatory anesthesia the choice of a safe and effective anesthetic is of paramount importance due to the need for quick recovery and minimal complications and to assure an excellent level of safety in patients that have to go back home. Dexmedetomidine appears to be a good option because of its analgesia and short-lived sedation properties that improves safety and efficacy by maintaining hemodynamic stability. The sedation produced does not depend primarily on activation of the γ-aminobutyric acid (GABA) receptors like that produced by traditional sedatives, such as propofol or benzodiazepines. The primary site of action of dexmedetomidine is the locus ceruleus and not the cerebral cortex, as would be the case with GABA-mimetic drugs. The unusual subcortical form of dexmedetomidine induced sedation is characterized by an easy and quick arousal, resembling natural sleep which is ideal for day care cases.

Dexmedetomidine in difficult airway

Cervical spine injury, maxillofacial trauma, geriatric patients with arthritic changes in the temporomandibular or atlantoaxial joints may present as challenges to securing the airway. Awake intubation in a patient with a potentially difficult airway is a problematic procedure which may be associated with wide hemodynamic changes. To attenuate this response, blunting of airway reflexes is required without losing the patient's cooperation. Conventional agents carry the risk of respiratory depression, with possible inability to ventilate the patient. Dexmedetomidine offers an ideal solution to this problem because patients are maintained cooperative with spontaneous breathing while attempts are made to secure their airway. In addition, thanks to its antisialogogue effect it maintains a dry field for the anesthesiologist thus facilitating the procedure.

Anticipated or unanticipated prolonged procedures

Several orthopaedic surgeries are known to last for hours together. It may not always be feasible or safe to put in an epidural or convert to general anaesthesia in every patient due to associated conditions. Seemingly shorter duration procedures may turn into prolonged major procedures due to certain problems like difficult reduction, vascular injuries, instrumentation problems.

Intravenously administered dexmedetomidine has been shown to produce analgesic effects by acting at both spinal and supraspinal levels.[12] The analgesic effect results from the inhibition of locus ceruleus at the brainstem. In addition, dexmedetomidine infusion may result in increased activation of presynaptic and postsynaptic $\alpha 2$ receptors at the spinal cord resulting in inhibition of nociceptive impulse transmission.

Dose: dexmedetomidine 0.5 μ/kg given over 10 mins prior to SAB followed by a maintenance infusion of 0.5 μ/kg/hr.

Thus iv supplementation of dexmedetomidine at the above dose hastens the onset of sensory block, prolongs the duration of sensory block, analgesia and motor block thus providing a safety net in unanticipated prolongation of surgery.

Dexmedetomidine as an adjuvant for intrathecal/ epidural/ peripheral nerve block

Apart from iv route dexmedetomidine can be used by several other routes as an adjuvant for intrathecal, epidural and peripheral nerve blocks. Though $\alpha 2$ adrenoceptors are not present on peripheral nerve axons there are 4 proposed mechanisms for action of dexmedetomidine. These are centrally mediated analgesia, $\alpha 2$ adrenoceptor mediated vasoconstrictor effects, attenuation of inflammatory response and direct action on the peripheral nerve.[13]

Dose: intrathecal: 0.3-0.5 μ/kg

Epidural: 0.3-1 μ/kg

Brachial plexus block: 1μ/kg

Dexmedetomidine prolongs the duration of sensory and motor block and enhances the quality of the block when used as an adjuvant to local anaesthetics.

Dexmedetomidine for intraoperative wake-up test

Some orthopaedic procedures like scoliosis repair surgery and other spine surgeries require intraoperative patient cooperation in the form of wake-up test. The prerequisites of this test being rapid arousability in order to obey commands which demonstrate integrity of the spinal cord. Due to its characteristic sedation profile dexmedetomidine is an ideal agent.[14]

Dose: 1μ/kg loading dose followed by 1μ/kg/hr as maintenance. To be stopped 5 minutes prior to wake-up test.

Dexmedetomidine for tourniquet pain

Tourniquet pain is particularly troublesome as it causes hemodynamic changes and physiological alterations. It is difficult to treat and requires intense analgesia. Dexmedetomidine due to its central sympatholytic and analgesic action prevents the hemodynamic consequences associated with tourniquet pain.[15]

Dexmedetomidine for shivering

Due to low OT temperatures, prolonged extensive surgeries, extensive fluid shifts shivering is a major problem in orthopaedic OT. Though it may seem a minor complaint, it has its repercussions on oxygen requirement and patient cooperation. Dexmedetomidine reduces the vasoconstriction threshold and the shivering threshold and is associated with a lower incidence of shivering.[16]

Dexmedetomidine for prevention of postoperative cognitive dysfunction

Post operative cognitive dysfunction is a major and preventable complication which has an increased incidence in orthopaedic patients, which may be due to microembolism from long bone fractures, prolonged hospital stay, inadequate analgesia or due to confounding factors like geriatric age group or polytrauma. Dexmedetomidine reduces the intracerebral catecholamine outflow during injury and less neural tissue damage with better neurologic outcome. The neuroprotection may be attributed to modulation of proapoptotic and antiapoptotic proteins. Also, the reduction of the excitatory neurotransmitter glutamate during injury may explain some of the protective effects.[17]

Conclusion

Dexmedetomidine, a multifaceted drug is one of the latest additions to the anaesthesiologists armamentarium. Due to its sedative, hypnotic, anxiolytic, analgesic, sympatholytic and anesthetic sparing properties is unparalleled in current anesthetic practice. All the aforementioned problems faced in the orthopaedic OT can be singlehandedly tackled by dexmedetomidine.

References

1. J.G. Reeves et al, Chapter 26, Intravenous Anesthetics,Miller's anesthesia 7th edition (2010), Churchill Livingstone Elsevier Publication ; Vol I : pg 752,753,fig 26-20,26-21.
2. Stahle H, In: Bindra JS, Lednicer D, Ed. Chronicles of drug discovery, vol. 1. New York: John Wiley and Sons 1982 ; 87-111.
3. Bhana N, Goa KL, McClellan KJ. Dexmedetomidine. Drugs 2000;59: 263-8.
4. Kamibayashi T, Maze M. Clinical uses of alpha2 –adrenergic agonists. Anesthesiology 2000; 93: 1345-9.
5. Chiu TH, Chen MJ, Yang YR, Yang JJ, Tang FI. Action of dexmedetomidine on rat locus coeruleusneurones: intracellular recording in vitro. Eur J Pharmacol 1995; 285: 261-8.
6. Lawrence CJ, Delange S: Effect of a single pre-operative dexmedetomidine dose on isoflurane requirements and peri-operative haemodynamic stability. Anaesthesia; 52:736-44, 1997.
7. Aantaa R, Kanto J, Scheinin M: Intramuscular dexmedetomidine, a novel alpha2-adrenoceptor agonist, as premedication for minor gynaecological surgery. Acta Anaesthesiol Scand; 35:283-288, 1991.
8. Aantaa R, Kanto JH, Scheinin M, Kallio AM, Scheinin H: Dexmedetomidine premedication for minor gynecologic surgery. Anesth Analg; 70:407-413, 1990.
9. Aantaa R, Kanto J, Scheinin M, Kallio A, Scheinin H:

Dexmedetomidine, an alpha2-adrenoceptor agonist, reduces anesthetic requirements for patients undergoing minor gynecologic surgery. Anesthesiology; 73:230-235, 1990.

10. Aho M, Lehtinen Am, Erkola O, Et Al: The effect of intravenously administered dexmedetomidine on perioperative hemodynamics and isoflurane requirements in patients undergoing abdominal hysterectomy. Anesthesiology; 74:997-1002, 1991.
11. Fragen RJ, Fitzgerald PC: Effect of dexmedetomidine on the minimum alveolar concentration(MAC) of sevoflurane in adults age 55 to 70 years. J Clin Anesth; 11:466-470, 1999.
12. Harsoor SS, Rani DD, Yalamuru B, Sudheesh K, Nethra SS. Effect of supplementation of low dose intravenous dexmedetomidine on characteristics of spinal anaesthesia with hyperbaric bupivacaine. Indian J Anaesth 2013;57:265-9.
13. Swami SS, Keniya VM, Ladi SD, Rao R. Comparison of dexmedetomidine and clonidine (α2 agonist drugs) as an adjuvant to local anaesthesia in supraclavicular brachial plexus block: A randomised double-blind prospective study. Indian J Anaesth 2012;56:243-9.
14. Bagatini A et al. dexmedetomidine as adjuvant drug for wake-up test during scoliosis correction surgery: case paper. Rev Bras Anestesiol. 2004 apr; 54(2) : 247-51
15. Deloughry JL, Griffiths R. Arterial tourniquets: Br J Anesth(Oxford journals) Vol 9 ;2009;56-9.
16. Bajwa SJ, Gupta S: Reduction in the incidence of shivering with perioperative dexmedetomidine:A randomized prospective study. Journal of Anesthesiology Clinical Pharmacology 2012;28;Issue 1; 86-90
17. J.G. Reeves et al, Chapter 26, Intravenous Anesthetics,Miller's anesthesia 7thedition (2010), Churchill Livingstone Elsevier Publication ; Vol I : pg 752,753.

SHORT COMMUNICATION

"An Exploratory Study To Assess The Health Status Of The Policewomen In Selected Police Station Of Mumbai"

Deshpande Mrunal Mandar

College Of Nursing, Bjgmc & Sassoon General Hospital, Pune

ABSTRACT

Objective:

1) To determine the physical health status of the policewomen based on selected health indicators.

2) To identify the health problems among the policewomen.

3) To determine the relationship between the health status and the selected variables i.e. – Age of policewomen, Education, Working experience.

Material And Methods : A descriptive and exploratory approach was used in the study. Survey design was used for this study. Sample size was **Three hundered civil policewomen working in the selected police station of Mumbai** Non Probability convenience Sampling technique was used to select the sample size. Tool consist of the semi-structure questionnaire and physical assessment sheet. The data was collected through An **Interview technique and Physical Examination. Discussion :** There was no history of any major illness (97%) among the selected policewomen Majority of the sample (99%)did not have history of bad health habit. Approximately 56% of the sample had rest and sleep for about 4-6 hours as there was no fixed time for duty hours. Consumption of outside food was seen in 98% of the sample It was observed that approximately 78% of the sample has to control urination during their field work because of non available. Majority of them 74% had complain of musculoskeletal disorders as they had more standing duties Majority of the sample had normal body weight. Majority of the sample (60%) had taken treatment for vaginal discharge, out of that 65% had problem since 2-3 years and 15% had this problem more than 5 years. Only 14% of the sample had normal heamoglobine level. **Conclusion :** Thus we can see that the policewomen have many predisposing factor which can affect their health status e.g. inadequate rest and sleep, consumption of out side food, long duty hours etc. The physical examination reveals that majority of them have good health status. The above finding stress the importance of brining awareness among the policewomen to take the necessary preventive measures before the health status declines.

Introduction

Females in Indian society have almost given back seat. She was always reminded that she has to dedicate her life for the welfare of the family, husband, and children. During her childhood she has to obey parents especially father. After marriage obey her husband and during her old age she has to follow son.

Now women have emerged from their traditional role as house wives and are entering the political, business and professional field which was previously dominated by males, may be skilled, unskilled. Expansion of role increase work load, has an effect on the health status of the women.

In India previously only male were allowed to join the police force, now women are also joining this profession In the police services women police have to work equally with the men, there is no excuse for them. They have to work more then 12 hours.

In home they have the responsibility of children, husband, and other house hold work.

The police women play dual role, in home and the work place. Addition of more roles increase her work load and predisposing them to various health problem

Material And Methods

A descriptive and exploratory approach was used in the study. Survey design was used for this study.

Sample size was **Three hundred civil policewomen working in the selected police station of Mumbai** Non Probability convenience Sampling technique was used

Address for correspondence:
Deshpande Mrunal Mandar, College Of Nursing, Bjgmc & Sassoon General Hospital, Pune

to select the sample size. Tool consist of the semi-structure questionnaire and physical assessment sheet. The data was collected through An **Interview technique and Physical Examination.**

The researcher adopted a practical approach for the development of the tool. the investigator visited the area and conducted interview with policewomen, also consulted with expert in the field, regarding the problems faced by the policewomen.

The tool is prepared in two (2) Sections. The SECTION-I is semi structured interview schedule Including demographic data, health history self and family. SECTION –II consist of physical assessment format - height, weight and head to food observation, laboratory investigation such as Hb % and urine sugar. Physical examination was done by using three technique - Inspection, Palpation and Auscultation and finding where recorded. Data to be analyzed using frequency percentages.

Relationship between health status and the selected variables to be analyzed using "t" test

Research Methodology

1) Research Approach : A descriptive and exploratory approach .

2) Research Design : Survey method

3) Setting for Study : Selected police station in Mumbai

4)Population : Civil policewomen working in Mumbai during the period of study.

5) Sample : Sample consist of 300 hundred policewomen who fulfill the selection criteria.

6) Sampling Technique: Non Probability convenient Sampling

Inclusive Criteria

a) Policewomen who are willing to participate in the study.

b) Policewomen who could speak and understand either Marathi, or English.

Delimitation :

1) The study is delimitation to civil police women from the selected police station of Mumbai only.

2) A study is delimitation to physical examination & self reporting method.

3) Lab investing is delimitation to estimation of hemoglobin percentage & urine sugar.

a) Interviewing :

Interview is a flexible technique that allows to explore meaning in greater depth. Interviewing the policewomen, semi structure interview schedule was used.

In an interview the investigator ask question & is clearly able to collect necessary information from the policewomen. At the same time it provides an opportunity to educate police women & clear there concept regarding their health problem.

b) Physical Assessment :

The overall health status was graded by giving a score. A score of one was given for any deviation from normal. A score of 2 was given for normal finding. The total overall score that could be obtained was 117. This was then graded as fellow : dexmedetomidine is like a boon to the anaesthesiologist, helping overcome many of the challenges encountered with minimal incidence of adverse reactions.

S. N.	Health Status	Score
1	Excellent	> 100
2	Good	50 - 100
3	Average	<50

c) Preparation :

Prior to the preparation of the total, the investigator visited, the area & conducted interview with the policewomen. This gave the researcher an idea about the health status & health problem of the policewomen.

Investigator consulted expert in the field to gather information regarding the problem faced by the policewomen.

The content validity of the semi structure questionnaire, physical examination was done. The total was given to expert from the department of prevention & social medicine & seven experts from the nursing department.

Reliability of the physical examination was done by inter-rater method. The coefficient of correlation was done by scoot formula.

Pilot study :

After the concerned permissions were taken from the concerned authorities, 30 samples were selected from police station for the pilot study.

Data gathering Process :

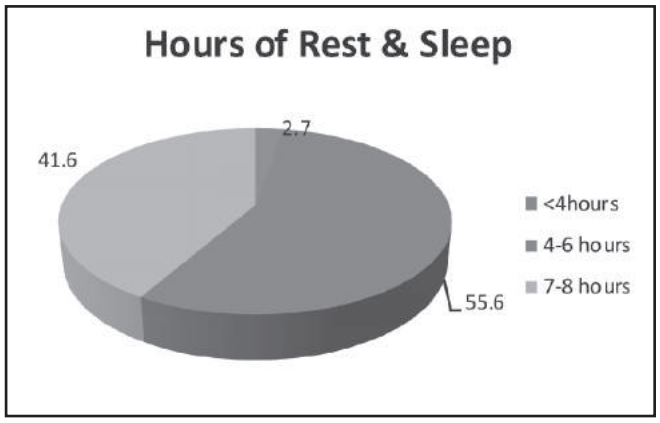
As per the experience of the time taken for one interview, a plan was made to complete 18 samples per day.

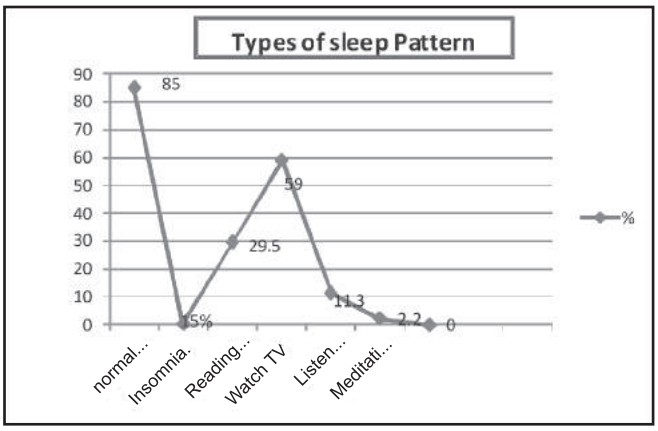
During the interview, the investigator asked the question & gave adequate time to the individual to respond. If the sample had any doubts, the researcher cleared their doubts.

The physical examination was performed in a separate room were privacy was maintained. One policewoman was taken at a time for physical examination. The average time taken for each sample was 30 minutes.

TABLE 1. Distribution of policewomen with regard to rest and sleep pattern

S.No.	Characteristics	Frequency	%
1.	Hours of Rest and sleep		
	a)<4 hours	08	2.7
	b) 4-6 hours	167	55.6
	c) 7-8 hours	125	41.6
2.	Sleep pattern		
	Normal sleep pattern	256	85
	b)Insomnia	44	15
	i) Reading paper /book	13	29.5
	ii) Watch T.V.	26	59
	iii) Listen Music	05	11.3
	iv) Meditation	01	02.2



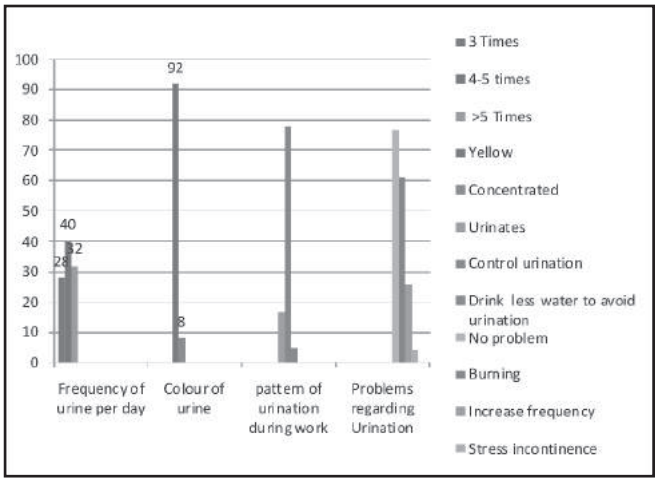


Majority of the samples (56%) get 4-6 hrs. of sleep, 42% get hrs. of sleep less than 4 hours.

Fifteen per cent had insomnia and out of that majority of the sample (59%) watch T.V. approx. 30% read book or news paper, 11% listen to music and 2% of the sample adopted meditation to go to sleep.

TABLE 2. Distribution of policewomen with regard to History of urination pattern

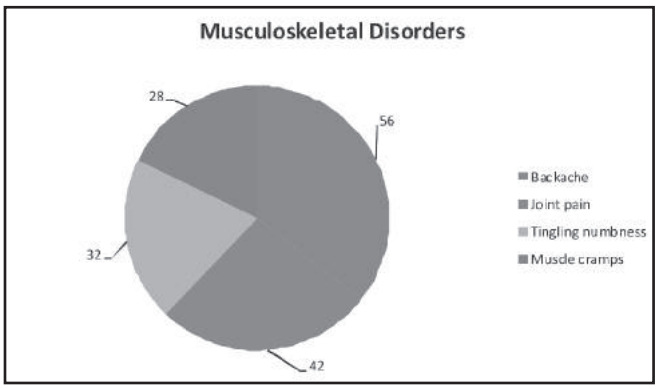
S.No.	Characteristics	Frequency	%
1.	Frequency of urine per day		
	a) 3 Time	83	28
	b)4-5-Time	122	40
	c)>5Time	95	32
2.	Colour of urine		
	a)Yellow	276	92
	b) Concentrated	24	08
3.	Pattern of urination during work		
	a)Urinates	52	17
	b)Control urination	233	78
	c)Drink less water to avoid urination	15	05
*4.	Problem regarding urination		
	a)No problem	230	77
	b)Problems-		
	i) Burning	43	61.4
	ii)Increase frequency	18	25.7
	iii) Stress incontinence	13	18.5
	iv)Pain during urination	03	04.28



Majority of the sample (78%) control urination when they were in the field, 17% of the sample were go to urination where ever possible, and 5% of the sample consumed less water during field duty to avoid urination.

TABLE 3. Distribution of policewomen with regard to Musculoskeletal disorders

S.No.	Characteristics	Frequency	%
1.	No problem	79	26
2.	Problem	221	74
	i)Backache	168	56
	ii)Joint pain	126	42
	iii)Tingling Numbness	96	32
	iv)Muscle cramps	83	28

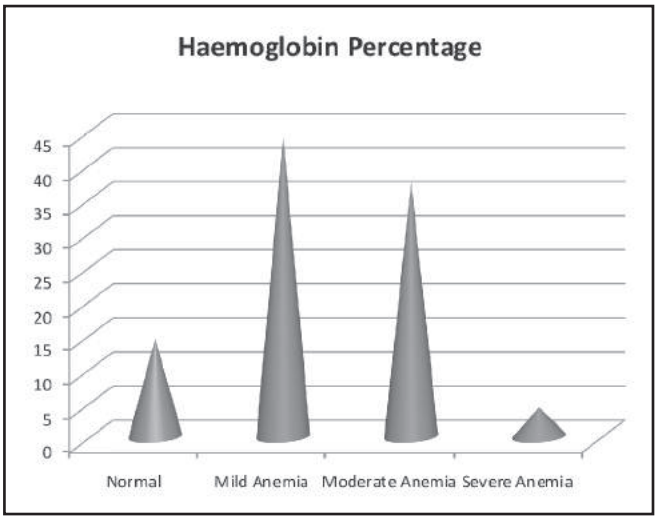


Majority of the problem (74%) had musculoskeletal problem. out of that 56% had back, 42%had joint pain.

32% had Tingling Numbness and 28 %had cramps.

TABLE 4. Distribution of policewomen with regard to Haemoglobin percentage

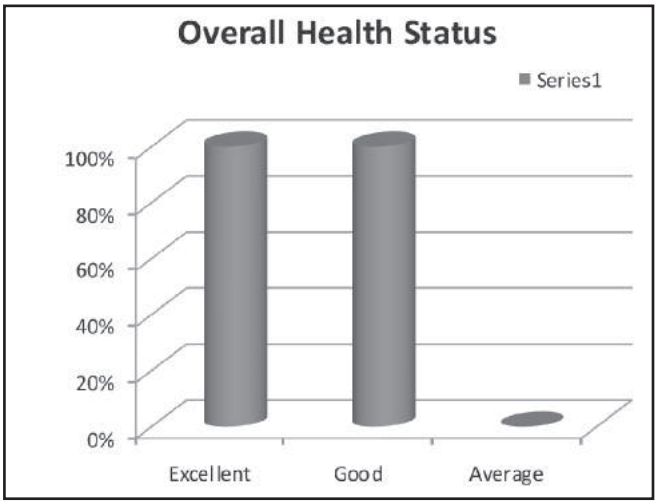
S.No.	Characteristics	Frequency	%
1.	Normal (12-13gm %)	43	14.3
2.	Mild anemia(10-11gm%)	132	44
3.	Moderate anemia(8-9gm%)	112	37.3
4.	Sever anemia (6.5<8 gm%)	13	04.3



44% of the sample had mild anemia, 37% moderate anemia and 4% had sever anemia.

TABLE 5. Distribution of policewomen in relation to their overall health status .

S.No.	Health Scores	Frequency	%
1.	Excellent (>100)	130	43
2.	Good (50-100)	170	57
3.	Average (<50)	0	0



Majority of the sample (57%) had good health status and 43%vhad excellent health status.

Conclusion

Finding of the study showed that policewomen had problem mostly of reproductive system and musculoskeletal system. Many had urinary problem as they did not take adequate amount of water in the field as no facility available for urination. Most of the policewomen develop early anemia, only 14%had normal hemoglobin level.

As the health problems of the policewomen is rising there is a needto give due importance to their health problems This study on assessing the health status of the policewomen has shown the musculoskeletal, reproductive and urinary problem, and anemia among the policewomen. Thus it revealed that the policewomen have many predisposing factors which can affect their health status.

The findings stress the importance of bringing awareness among the policewomen to take the necessary preventive measures before the health status declines

Acknowlodgement

The investigator raises her heart in sincere gratitude to God for his constant companionship and guidance in completing the study.

References

BOOKS-

1) Annual report of the Maharashtra Police ;2006-2007.
2) Basvanthaappa B.T. Nursing Research ; New Delhi ; Jaypee Brothers Pvt. Ltd .2001
3) Burns N.Grve SK. The practices of nursing research : critique and utilization 4 ed. Philadelphia .W.B.Sunders 2001.
4) Garret HE ed. Statistics :In psychology and Education .Sixth edition .Bombay Vakils and Simons limited 1981.
5) Judy Pearsall editor Concise Oxford English Dictionary 10 ed. Revised .Oxford University press .New York ;2002
6) Polit D.F. and Hungler B.P. Nursing Research Principles and MEATHEDS 6 ED. Lippincott publication Philidelphias.
7) Gorge J.B.edtior Nursing Theories, 2 ed. New Jercy, Prentic Hall INC Englewood clifits.

JOURANALS

1) Antonio S., Astudy on stress urinary incontinence among women of all ages. Univrsity of Texas Health Science Center USA :2004.
2) Brauchle G. Incidences and reation related predictors of the acute and post traumatic stress disorders in disaster workers ,Z psychosom Med. Psychother 52 (1) 2006.
3) Deparment of Enfermagenuniversity federal .To assess working women morbity and their use of health servicesv.Terseenia Brazil .1992.
4) Garbariono S. et.al. Sleep disorder and day time sleepiness in a state police shift workers Arch Environ Health 57 (2) 2002 Mar –Apr.
5) National Center for epidemiology and population health, Women employment at risk for upper limb musculoskeletal disorders. The Australian National University :2000.
6) Oregon Health and science University, School of Nursing Assessment of Women for urinary tract infection, Veterans Hospital Road Portland . USA.
7) Pole N. et.al. Effect of gender ethnicity on duty related post traumatic stress symptoms among urban police officers I NervMents 186 (7) 2001 Jul.
8) Rhodes EC.Forenholtz DW. Police officers physical fitness Can J sport Sciences 17(3):

SHORT COMMUNICATION

An Exploratory Study To Assess The Separation Anxiety Level Of Children Aged 6- 10 Years Residing In Selected School Hostels Of Pune City

Kamble Vidya G.

College of Nursing, BJMC and SGH. Pune

Introduction

BACKGROUND OF THE STUDY

"The child is a precious gift for parents". Children are most important asset and wealth of a nation; Healthy children make healthy nation. The child is not miniature but an individual in his own right. The foundation of child`s social attitude and skills are laid in the home In present times because of the rapid industrialization and urbanization, majority of young couples are employed, so unavoidably they get less time to look after their children. Nuclear family and their profession e.g. IT, television stars, call center etc. their office demands longer hours and because of that their children left alone at home.[1]

The relevant statistical data about total population of children belonging to the age group of 6 -10 years is given below[2,3]

World : 6892 millions

India : 1188 millions

Total population of male and female child in Maharashtra and Pune District

	Male	Female	Total
Maharashtra	50,334,270	46,417,977	9,6752,247
Pune District	3,768,001	3,456,223	7,224,224
Pune (Urban City)	2,221,868	1,983,517	4,195,385

Population of school going children belonging to the age group of 6 -11 years in Maharashtra, Pune dist, Pune urban area

	Male	Female	Total
India	11,286,610	10,675,391	2,196,2001
Maharashtra	63,6658	61,8250	12,54,908
Pune District	386015	360014	746029
Pune (Urban City)	19,0,316	15,47,14	34,50,30

Statistical data about number of pre primary and primary school in Maharashtra state Pune Dist.

	Preprimary schools	Primary schools	Total
Maharashtra	20758	42167	62925
Pune District	1217	2821	4038

Total no of schools and Boarding schools in Pune city (Urban)

Schools	Municipals Corporation school	ICSC Board	Boarding schools	Total
296	20	13	36	365

Information of statistics about boarding school in India shows that there are various types of boarding schools for example religious Ashram schools, Central Board of Secondary Examination. Boarding / Residential schools have been opened by various non-government3 organizations/ Educational institutes/ Trusts. Besides central Government's Defence ministries has also opened residential schools like Sainik schools. The school authorities say "At least 50% parents of children, studying in boarding schools do not have time for their children. Of course, the other half of parents, who follow

Address for correspondence:
Kamble Vidya G., College of Nursing, BJMC and SGH. Pune

their children progress after sending them in boarding school"

The reasons for sending children to a boarding school are changing, earlier, it was to give them quality education. now, it is more often because parents are too busy to give them quality attention, but children always wait for their parents.[5]

Statement

An exploratory study to assess the separation anxiety level of children aged 6-10 years residing in selected school hostels of Pune city.

Objectives

- To assess the level of anxiety experienced by children of age group 6-1o years residing in school hostels.
- To correlate the findings with selected demographic variable such as age, gender, education, ordinal position, presence of relative nearby, frequency of parents' visit and type of family

Assumptions

- Child's anxiety level can reflect on the behavior of the child.
- Separation anxiety may be observed among the children who stay in the boarding school.

Delimitations

- The child's age group between 6-1o years
- Who can read, write, speak English, Hindi and Marathi

Who are willing to participate in study. hquake 11 December 1967, now it is in Pusegoan Tal. Khatav, Nasik public schools

Methods

Non experimental exploratory research design used in that a survey method was used to assess anxiety level, as per the opinion expressed by school children.

Sampling Technique

In This study 'non-probability convenience sampling technique' was used for selecting samples (200 hostelite school students) who met the inclusion criteria.

Questionnaire (Modified Spence anxietyscale). The structured statement sheet consists of two sections.

Section I: Deals with demographic data of the sample

Section II: Statements assessing anxiety of the hostelite school students as faced by them.

SCORE	CATEGORY
0-25	Normal
26 -50	Moderate anxiety
51-75	Mild anxiety
76-100	Severe anxiety

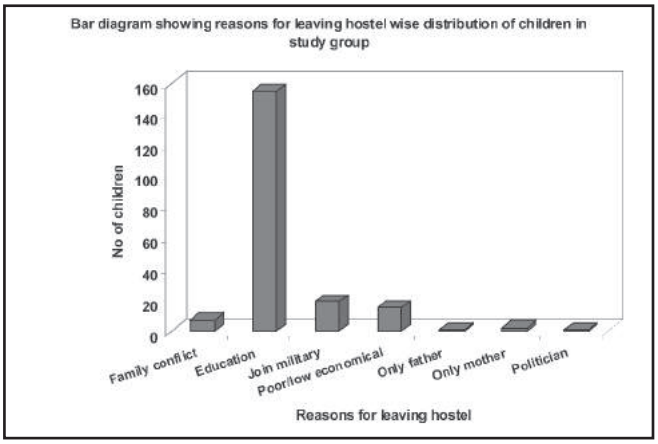


Figure 1Bar diagramshowing according to reasons for leaving hostel wise distribution of children.

Percentage Wise Distribution Of Children According To The Level Of Separation Anxiety Experienced By Them

		N=200
Level of anxiety	**No of cases (f)**	**Percentage (%)**
0 – 25 (Normal)	41	20.5
26 – 50 (Mild)	138	69
51 – 75 (Moderate)	21	10.5
76 – 100 (Severe)	0	0
Total	**200**	**100**

The data depicted in the table no 2 shows that 138(69%) children having mild (26-50) level of anxiety 41(20.59) in Normal (0.25) and 21 (10.5) in moderate (51-75) No children same in severe Level of anxiety.

Mean, Standard Deviation, 'Z' Value And 'P' Value, of Anxiety Score According To Age Of Children.

P N=200

Parameters	Age (6-8 Yrs)	Age (9-10 Yrs)	Z Value	P Value
	Mean ± SD (n=119)	Mean ± SD (n=81)		
Anxiety score	38 + 10.7	29.96 + 9.54	5.06	<0.0001

From the above table it is as evidenced that the anxiety level of the children is significantly reduced as their age is increased as evidenced by 'Z' value of 5.06 and 'P' value of 0.0001. Hence we can say that as the child's age is increase the anxiety level is decrease. He/She may adjust in Hostel Environment physically, Psychologically with the advancement of his/her age.

Mean, Standard Deviation, Z Value And P Value, Comparison Of Level Of Anxiety Score According To Gender.

N=200

	Mean ± SD (n=100)	Mean ± SD (n=100)		
Anxiety score	34.8 + 12.2	34.72 + 9.58	0.53	>0.05

The data depicted in the table 4 shows that the anxiety level of the children according to Gender wise, The study shows there is no significant different in the level of anxiety score as 'Z' valve 0.53 and 'P' valve . 0.05

DISCUSSION

The findings of the present study have been discussed with reference to the objective. The anxiety level of the children is significantly reduced as their age, educational level is increase. Hence we can say that he/she may adjust in hostel environment physically, psychological. (e.g. food, staying, studying, rules and regulation of hostel) study also shows that love and affection of parents during holidays and vacation.

The school authorities have a great responsibility towards appraisal of the stressors and assessment of behavior of the children. The authorities should adopt coping resources like problem solving abilities, social supports and cultural beliefs to help the students to cope with new environment. Loving and caring teacher and caretaker in the hostel/school, help the children coping in constructive way that is problem-solving approach, self assertive behaviors that respect the rights of others.

The above findings of the present study are also supported by the study done by:

Mireia Orgiles in Spanish (2010) who studied sample of 1407 children aged between eight and eleven, and examines gender and age differences in late childhood. It was used a specific self-report measure for separation anxiety disorder, the Separation Anxiety Scale for children, developed for Spanish speaking children and based on the DSM-IV-TR and ICD-10 diagnostic criteria. Result showed that children have more cognitive symptoms than psycho physiological or motor responses. The most feared situations found are related to the possibility that something bad happen to the parents and the less common situations are those related to somatic complaints. Separation anxiety symptoms were experienced by 3.9% of the sample, were more common in girls than in boys and The present study was under taken to assess the anxiety level among children who are separated from parents residing in selected school hostel of Pune city.

The main aim of taken this study was a considerable amount of researches are carried out in the area of anxiety level coping mechanism, adjust in hostel, physical care and emotional balance is important for constructive behavior.

The study was conducted with quantitative, exploratory approach. It was conducted on sample 200 hostelite school children. The hostel is situated at various area of pune city.

Conclusion

The following conclusion was drawn from the study findings analysis. The anxiety level of the children is significantly reduce as their age and educational level is increased. Hence we can say that he/she may adjust in hostel environment physically, psychological. (e.g. food, staying, studying, rules and regulation of hostel) study also shows that love and affection of parents during holidays and vacation helps in reducing the anxiety level Loving and caring teacher and caretaker in the hostel/school, helps in great to the children coping in constructive way by using problem-solving approach, self assertive behaviors that respect the rights of others and thus helps in reducing separation anxiety.

References

1. WolbertBurgess, Ann, psychiatric nursing promoting mental health Stamford connecticut. Appleton and Lange a Simon and Schuster company, p 202

2. 2010 world population of India data sheet population reference bureau washington, USA.
3. Ministry of human resource development government of India, selected Educational statistics 2000-2001
4. Mary. C Townsend, psychiatric mental health nursing 5th ed. Jaypee page 435.
5. Jackson Sheila M, Lane Susane, personal and community health. BailliereTindall London, 2nd edition. P 85.
6. Gail W. Stuart, Michele T, Principles and practice of psychiatric Nursing 6th edition (stuartsundeen's) mosby p 273
7. Austin Wendy, Mary Boyd, Psychiatric Nursing for Canadian practice, Lippincott Williams & Wilkins. p 401-37
8. Glenn. The parents guide to child raising. Edition 10th. New jersey; printice hall; 1078 pg 87
9. Oxford dictionary, Great Bretain Mosby St Louis Medical Nursing and allied health Dictionary fourth edition 1994.
10. Polit, Beck, Hugle; Essential of Nsg research methods,appraisal,andutilization; 5 the Philadelphia; Lippincott publishers; 2001; pg. 325.
11. Kahan; Barbara: child care, research policy and practice, London: Hodder and stonghton: 1980
12. Abdella F.G. and Levine. Better pt. Care through nursing research: 2nd ed. New York. Mc Millan press Ltd. 1979.
13. Talbot A. L. Principal and practice of nursing research: St Louis: Mosby; 1995 Pg.no. 114-125
14. Beck Rawins and William. (1984). Mental Health Psychiatric Nursing (p.10-15).Stluyis: Mosby.
15. Basavantappa. B.T (2005)Pediatric/child heath Nursing. First edition. Ahuja publishing house. P-596, 801.

UNPUBLISHED DOCUMENT

16. Un publish documents from Directorate of education central building, corporation office pune

MAGAZINE

17. Sunanda Metha and Garima Mishra, `where`s my daddy' eye the Sunday Express Magazine, May 2011.p 8-12.

JOURNAL

18. Journal of primary prevention, 25[1],105-123

INTERNET

19. http// www ncbi , nihgov/pub med 1056022
20. http;//ajp psychiatry online org/cgi/content/ abstract/150/ 10/1673
21. http;// bjprcpsych. Org/cgi/conten/abstraet//n/6/534
22. http//ajppsychiodry inline org/cgi/content abstract/158/1 /49
23. http;// www, hindnstanlink com pune diary. Com/html/ pmc schools htm.
24. http// www.education. Com/magazine/ article/ separation anxiety
25. http;// www.hindustan.
26. http;// www. Reliance. Co in/search www ask com. 16/ school in pune city.
27. http// www.mindresources com.
28. http// www. Unicef, org/ infoby country/ India statistics ntm
29. http//www.who.Int/bulletin/volumes/88/5/10-0510/en/ index.htm/
30. http//www.prb.org/publications/Data teets/2009.wpds. asp/

SHORT COMMUNICATION

"A Study To Assess The Effect Of Tobacco Handling On Full Term Pregnancy Outcome Among Bidi- workers Delivered In Selected Government Hospital Solapur."

Korake Rajashree Vijay

Sassoon General Hospital, Pune

ABSTRACT

Aim: "Assessment of the effect of tobacco handling on full term pregnancy out come among bidi-workers delivered in selected Government Hospital Solapur."

Objective:

1) To assess the full term pregnancy outcome among bidi workers delivered in Selected Government Hospital Solapur.
2) To compare the full term pregnancy outcome among bidi workers and non bidiworkers delivered in selected Government Hospital Solapur.
3) To co-relate the full term pregnancy outcome with selected variables i.e. age, income, education, parity, mode of delivery, among bidi–workers delivered in selected Government Hospital Solapur.

Material And Methods: Non experimental research design was used for research study .This is exploratory comparative research study. Sample size was50 Full term pregnant bidi workers and 50 full term pregnant non-bidiworkers.who were delivered in selected Government Hospital Solapur. Non Probability Purposive Sampling technique was used to select the sample size. The data was collected through An **Interview Schedule and Observation Check list.**

Discussion : The effect of Tobacco Handling on birth weight of babies and placental changes were significantly observed.

There were more incidences of IUGR babies in study group (41%) then control group.

Placenta ratio of study group was higher (0.1968) then control group (0.1791).

The incidence of calcification was more in study group (61%) compared to control group (44%) .

There was significant co-relation between duration of tobacco handled per day and birth weight. Some is true for number of bidis rolled and weight of baby Prematurely, Prenatal Mortality rate was more in study group there was significant changes in placenta (gross & microscopic) cause fetal hypoxia in study group.

Conclusion: So it was draw the conclusion that tobacco handling affect mother, fetus and placenta adversely independent of other material factors such as height, Wight, partly, socio-economic status etc. Large study is required to get correct incidence Prematurely, Prenatal Mortality rate was more in study group there was significant changes in placenta (gross & microscopic) cause fetal hypoxia in study group.

Introduction

India is developing country also has the second highest population in the world. Majority of population have their socio-economic status below average. Illiteracy and poverty is one of the most important causes that this population adopts any occupation which does not require education and skill. One of such occupation is Bidi- Industry".

In India there are 10 to 15 millions of population is involved in Bidi- Industry. Out of which 75,000 to 95,000 female bidi- workers are manually Prepare bidi daily at home in Solapur district. During this process they place the tobacco in Tendu Leaf roll it tightly and secure it with thread. This entire bidi rolling process cause inoculation of tobacco dust (particle) through intact skin and mucous membrane as well as also inhaled by respiratory tract. This occurs because these women bidiworkers do not adopt precautionary measures, safety and hygienic measures to protect the body from such occupational hazards. The full term pregnant bidi workers for research study to assess the effect oft Tobacco handling on full term pregnancy- outcome among bidiworkers delivered in selected Government Hospital

Address for correspondence:
Korake Rajashree Vijay, Sassoon General Hospital, Pune

Material And Methods

Non experimental research design was used for research study. This is exploratory comparative research study. Sample size was50 Full term pregnant bidi workers and 50 full term pregnant non-bidiworkers.who were delivered in selected Government Hospital Solapur. Non Probability Purposive Sampling technique was used to select the sample size. The data was collected through An **Interview Schedule and Observation Check list.** The tool is prepared in3 sections The tool is prepared in 3 sections - Sections – A, Sections – B section C Section **A** -Demographic data Section **B-** Obstetrical History :- Part-I Past obstetrical History. Part II - Present obstetric. Part III - Medical History

Section C Part - I General observation, Part – II Obstetrical observation. The birth weight of babies delivered to study group and control group and placenta weight was measured by using electronic weighing machine in order to calculate fet- placental ratio and strict placental changes like placental infarction and calcification was observed and other demographic data, history of previous obstetrical complication and present obstetrical history was collected by using interview schedule. Statistical analysis was done by using z test for difference between two proportion and difference between two Mean and X^2 test for association.

- **Variables -** According to Polit & Hungler (1993) it is an attribute that varies.
- **1) Independent Variable; -** Effects of Tobacco Handling
- **2) Dependent Variable; -** Full Term Pregnancy Outcome.

Research Methodology

1) Research Approach : Non Experimental

2) Research Design : Non Experimental Exploratory Comparative study.

3) Setting for Study : Shri C.S.M. General Hospital, Solapur [Labour Ward]

4) Population : 1) Full term pregnant bidi workers delivered in selected Government Hospital

2) Full term pregnant nonbidi workers delivered in selected Government Hospital.

5) Sample 1) 50 Full term pregnant bidiworkers delivered in selected Government Hospital.

2) 50 Full term pregnant non bidiworkers Delivered in selected Government Hospital

6) Sampling Technique: Non Probability purposive Sampling

Criteria

I Inclusive Criteria

1) Full term pregnant bidi workers & non bidi workers who are delivered in selected Government Hospital.

2) Works as bidi workers more than 3 years.

3) Who speaks & understand Hindi & Marathi

4) Who are willing to participate in the study

II Exclusive Criteria:

1) Full term pregnant bidi-workers & non bidi-workers who were not delivered in selected Government Hospital

2) Pregnant bidi-workers & non bidi-workers with PIH, Eclampsia, Pre-Eclampsia& Anemia.

3) Works as bidi workers less than 3 years.

4) Who are present for pilot study.

- **PROTECTIVE OUTCOME**

1) To make aware the pregnant bidi workers to use protective, precautionary& safety measures while bidi rolling.

2) To make aware & to motivate for utilization welfare scheme implemented by Indian Government for Bidi workers specially women & children.

Thus protect from ill effect of tobacco handling on pregnancy outcome among full term pregnant bidi workers.

Result

Table1. Distribution Of Cases According To Mode Of Delivery Between Study Group And Control Group

Mode of delivery	Study group		Control group	
	No. of cases	Percentage	No. of cases	Percentage
Vaginal	39	78	43	86
LSCS	11	22	07	14
Total	50	100	50	100

It is found that vaginal delivery is more observed in control group than the study group (10% more than the study group) And L.S.C.S are more in study group than the control group..(8% more than the control group)

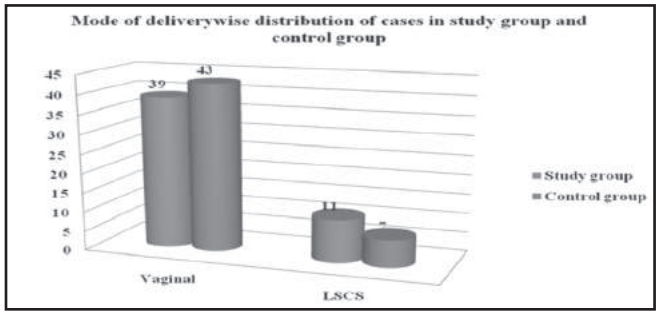


Table 2. Distribution Of Cases According To Birth Weight Of Babies Between Study Group And Control Group

Birth weight in Kg	Study group		Control group	
	No. of cases	Percentage	No. of cases	Percentage
1 – 1.5	01	02	01	02
1.6 - 2	05	10	04	08
2.1 – 2.5	23	46	06	12
>2.5	21	42	39	78
Total	50	100	50	100

It is found that total Low Birth Weight cases from study group are 29 out of 50 cases i.e. .58% and Total Low Birth Weight cases from control group are 11 out of 50 cases i.e.22%

So from above discussion at is observed that in Study group the effect of tobacco handling on birth weight of baby is significantly observed. The Mean Birth Weight among study group is 2.480 Kg (S.D. 0.485)The Mean Birth Weight among control group is 2.770 Kg. (S.D. 0.491)

Study group = Mean feto-placental ratio is 5.29 (S.D.0.78)

Control group = Mean feto-placental ratio is 6.34 (S.D1.04

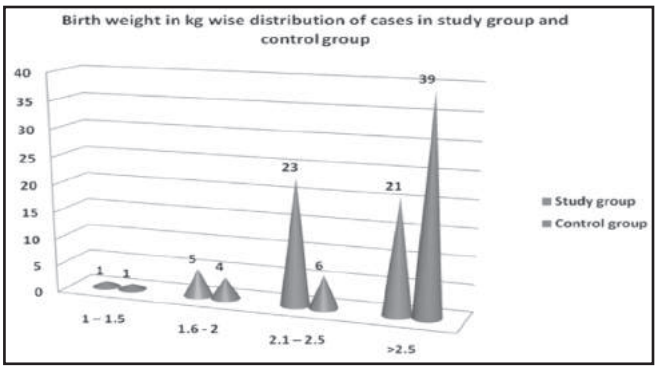


Table 3. Distribution Of Cases According To Maternal And Fetal Surface Infarction And Calcification In Study Group And Control Group

		Study group n=50		Control group n-50	
		No. of cases	Percentage	No. of cases	Percentage
Maternal Surface	Infarction	13	26	6	12
	Calcification	23	46	12	24
Fetal Surface	Infarction	13	26	6	12
	Calcification	24	48	13	26

From above table it is observed that more Cases from study group are shown Maternal & Fetal Infarction/ Calcification i.e. 72% than Control group i.e. 36% (Two times greater than Control group)

Also it is observed that Cases of Maternal & Fetal Infarction is less than the Cases of maternal & fetal Calcification from Study group as well as Control group.

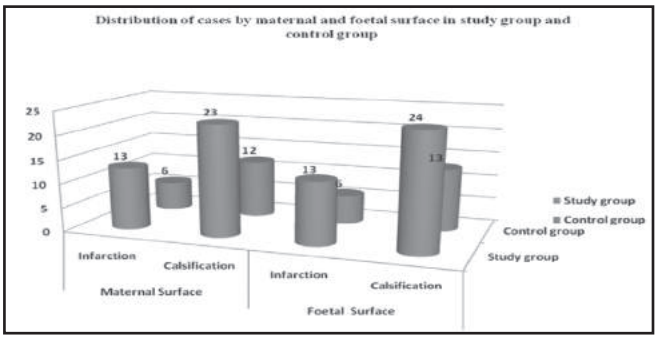


Table4. Distribution Of Cases With Associated Obstetrical Complications In Study Group And Control Group

Obst. Complications'	Study group n=50		Control group n=50	
	No. of cases	Percentage	No. of cases	Percentage
PROM	23	46	09	18
H/O Pre-LSCS	03	06	01	02
H/O Abortion	01	02	01	02
Abruptio placenta	00	00	01	02
H/o Pre-term delivery	05	10	03	06
Retained placenta	01	02	00	00

It is found that the cases of Premature Rupture of Membrane are more i.e. 46% in the study group than the control group i.e.18%The cases of H/O Previous L.S.C.S. are three times greater in study group than the control group. The other obstetrical complication like Abruptio-Placenta and Retained Placenta is more or less found in study group and the control group. So it is interpreted that the cases of associated obstetrical complication are more in the study group than the control group. There is significant effect of tobacco handling is observed on pregnancy outcome among study group**.**

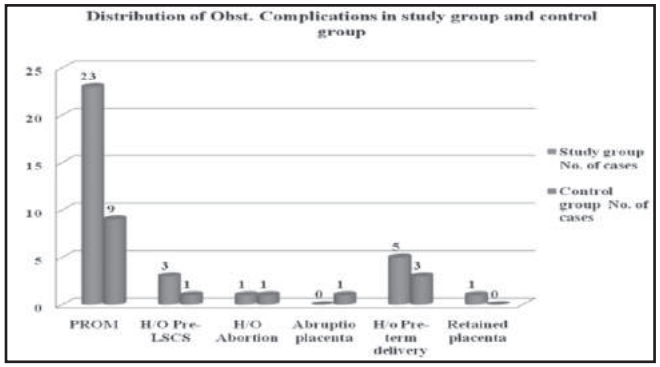
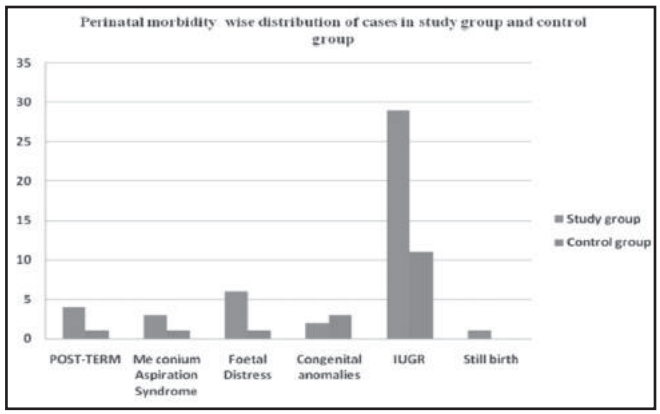


Table 5. Distribution Of Cases With Perinatal Morbidity And In Study Group And Control Group

perinatal morbidity	Study group		Control group	
	No. of cases	Percentage	No. of cases	Percentage
Post term	4	08	1	02
Meconium Aspiration Syndrome	3	06	1	02
Fetal Distress	6	12	1	02
Congenital anomalies	2	04	3	06
IUGR	29	58	11	22
Still birth	01	02	00	00

It is observed that more cases of MAS & FD are observed in Study group than the Control group (Three to Six times greater than Control group) The cases of Intra Uterine Growth Retardation are two to three times greater in study group than the control group I.e. 58% in study group and the 22% in the control group. The case of Still-Birth is found in study group. So the incidence of Still-Birth is 1 in 50 cases i.e. 2% in full term pregnant bidi-workers. So the effect of tobacco handling during bidi rolling process is significantly observed in study group. (P value is $P < 0.001$)



Discussion

In our study the study group (Full term pregnant bidi workers delivered in selected Government Hospital Solapur) do not smoke or chew tobacco but handle the tobacco during bidi rolling process with bare hands at lists for more than 8-10 hours per day. It cause most of ingredients of tobacco are absorbed through intact skin as inhaled the tobacco dust thorough respiratory system & may have similar effect on pregnancy and pregnancy outcome like tobacco smoking The data is collected from 50 full –term pregnant bidi- workers & 50 full-term pregnant non bidi-workers who were delivered in selected Government Hospital Solapur by using self prepared research tool (Interview schedule and Observation check list) The collected data is analyzed. It is organized in tables and then shown in graphs The following way data is analyzed. The full term pregnancy outcome is assessed & compared between bidi- workers and non bidi- workers. Lastly the full –term pregnancy outcome is co-related with selected variables i.e. Age. Income Education, Parity, Mode of delivery and duration, hours and number of bidi making per day

- Incidence of literacy in study group was 88%.
- The incidence of low socio - economic status was 98%.in the study group.
- There was more incidence of Upper Respiratory Tract Infection in study group than control group.
- There was more incidences of IUGR babies in study group (41%) then control group.
- Placenta ratio of study group was higher (0.1968) then control group (0.1791).
- The incidence of calcification was more in study

group (61%) compared to control group (44%) .

- The incidence of registered cases were (67.2%) in study group (73.14%) control group.
- The obstetrical complication like, Abortion. Preterm Delivery, Abruptio - Placenta, Placenta Previa were Illiterate & from low socio-economic status.
- Incidence of IUGR was more common in study group 26 cases had IUGR in study group as compared to 16 cases in control group was statically significant.
- The difference between weight of boby in study group and control group was 310gm which was statically significant.
- There was significant co-relation between duration of tobacco handled perday and birth weight. Some is true for number of bidis rolled and weight of baby

Prematurely, Prenatal Mortality rate was more in study group there was significant changes in placenta (gross & microscopic) cause fetal hypoxia in study group.

Conclusion

It is concluded that The difference between birth weight among study group & control is 300 to 310 gm. So the birth weight of baby born to study group is 300 to 310 gm less than the birth weight of the baby delivered to control group. Vaginal Delivery more observed in control group than study group. And L.S.C.S is more observed in study group than control group. The reason for it is Fetal Distress, Meconium Aspiration Syndrome, Contracted Pelvis Disproportionate, P.R.O.M. & I.U.G.R It is observed that more cases from study group are shown Maternal& Fetal Infarction/Calcification than control group. Which increases the number of cases of Low Birth Weight? Because the Maternal and Fetal Infarction and Calcification cause the placental insufficiency and placental dysfunction which reduces Utero- Placental circulation causes fetal hypoxia leads to I.U.G.R. or L.B.W. Still-Birth (I.U.F.D)

Acknowledgement

I solemnly acknowledge a sense of deep gratitude towards institute of nursing inducation ,sir J J. Group of Hospital and Principal as well as faculties of this institute.

References

JOURANALS

1) Agrawal P, Chansoriya M, Kual KK, Indian Paediatirc V 20 , no. 8,P561,1983
2) Jan Johnson etal,British Journal of Obs/ygn v102,page no 918,1995.
3) James Haddowetal British Journal of Obs/gyn v94,page no 678,1987.
4) Kielyetal ,British Journal of Obs/gyn v101,page no 301,1994.
5) Lindbladetal British Journal of Obs/gyn v72,page no 371/1988.
6) Martion U/M American Journal of Obs/gynv 172, page no1485 ,1995.
7) VermaR.C.etal Indian paediatric v20, page no02, 105, 1983.
8) Khalid Low Birth Weight Of Suadi Arabia V1,Issue1, page no 47-541995.
9) Dr Sardesai Suman, Dr P. Shinde, Dr S. Patil, Dr M. Rayate, Dr Muley B.,Tobacco Handling By Pregnant BidiWorkers, As Hazardous As Smoking During Pregnancy, The Journal Of Obs/Gyn. Of India V57,Nov4, July/Aug2007,Page no 335-338.

TEXT-BOOK.

1. Chabras, Text Book OF Public Health, V3, 1994,
2. Williams Text Book OF Obstetrics, Ed.28,488.
3. Bernardio Ram 35Goodman And Gillman, The Pharmacological Basis Of Therapeutics Ed8V1 Nicotine page no 217-555.
9. Polite D.F. &Hungler B. P.,Nursing Research and Principles and Methods 6ed. Lippincott Vilkins Philadelphia (2006)

INTERNET.

1) Sunley, email India The tax treatment of bidis available from http:/tobacofree centre.org./files/pdfs/reports articles/sunley-BidiTax/20final-5 Feb.08.pdf title The Bidi workers and livelihood
2) 2008 compagn for tobacco freekitswww.tobaccofree centre.org/bidi industry in india workers and livelihood : women & children

Obstacles And Recommendations For Adaptation Of Art And Science Of Kangaroo Mother Care Practices At Resource Limited Center In Maharashtra.

Khadse Sandhya., Hiremath Ashwini

Low birth weight is a global problem with 30% to 40% incident in India. Of the estimated 4 million neonatal deaths, preterm and Low Birth Weight (LBW) babies constitute 20%. India's share of the global burden of neonatal deaths is the highest for any single country. If we wish to bring down the infant mortality rate (IMR), it is mandatory to reduce the neonatal mortality and morbidity which constitute 2/3rd of IMR.

Unfortunately there is no simple solution to the problem of LBW babies as birth of LBW babies is closely linked with mother's health and care received during her childhood, adolescence, pregnancy and child birth.

Kangaroo mother care is a special low cost comprehensive method of caring of LBW babies. It fosters their health and well being by promoting effective thermal control, breast feeding, infection prevention and bonding. The two important components of KMC are skin to skin Contact and exclusive breast feeding. The pre requisite of KMC is support to mother in hospital, at home and post discharge follow up. Apart from the benefit of the breast feeding, thermal control, early discharge, good weight gain, less morbidity, KMC helpsboth infants as well as parents. Mother are less stressed, they report a stronger bonding with the baby, increased confidence and deep satisfaction. Father toofeel more relaxed, comfortable and better bonding. The emotional bond between parent and child means, what the parents pass on to their children. The child internalizes and assimilates this and it becomes the corner stone for his overall growth and development.

It is utmost important to educate the health care personnel involved with maternal and child care in the art and science of kangaroo mother care. However to give this best start of life to LBW babies with a humane touch at the resource limited health care facility lot of difficulties are faced. Even though a unanimous agreement has been reached on the need for global support for kangaroo Mother care- a strategy for child survival, by health experts, head of the state, nongovernmentalorganizations (NGOs) and WHO, still while adopting and practicing KMC by considerable number of institutions several loop holes have been identified. There is an urgent need to recognize the problem encountered and find out amicable solution in the best interest of mother and baby.

Difficulties and pitfalls, usually encountered are as follows,

Policy matter

- No National policy available for KMC.
- Lack of plans.
- Lack of institutional/professional/academic support.
- Absolute lack of political will and administrative support.
- Lack of co-ordination between administrators, obstetricians, pediatricians, nurses, social worker, nutritionist, clinical psychologist, and developmental neurologist offering maternal and child care services.
- Lack of provision in the annual Program Implementation Plan (PIP) of NRHM and public health.

Address for correspondence:
Khadse Sandhya

- Lack of co-ordination between the ministry of public Health, medical education and research and ministry of women and child, regarding implementation of KMC.

Training

- Lack of adequate training and continuous education for all cadres of health care professional.
- Lack of isolated and vertical program on training.
- No assistance by the health care system.
- No allocated funds and budgets for the training.

Monitoring

- Lack of standard for monitoring and evaluation of the results of KMC practices.
- Non availability of authenticated quality assured monitoring and supervision team.
- Lack of appointment of isolated and designated health care professional as a program manager to evaluate the KMC care practices.

Man power

- Lack of trained staff in NICU, PNC wards, Immunization and follow up clinics.
- Lack of Clinical psychologist, pediatric counselor, social worker, developmental interventionist in various government institutes. In spite of vacancy and provision as per MCI still the post of clinical psychologist and social worker is vacant in most of the medical colleges.

Problems in implementation

- Poor access to information.
- Poor facilities, equipment, supplies and organizations.
- Lack of time, space and funds.
- Lack of trained staff as training for KMC till date is optional and not compulsory.
- Lack of provision for sleeping and resting during KMC for mothers in NICU.
- Non availability of culturally acceptable, privacy standard in the nursery and post neonatal care ward for practicing KMC.
- The lack of flexibility in the policy of NICU on restricted entry of male care givers and poor administrative will and support to change the policy.
- Lack of confidence amongst the staff to initiate KMC on oxygen dependent babies and babies on IV fluids.
- Lack of provision of the environment with a mother friendly ambience for successful implementation of KMC.

Communication

- Mother and families totally unaware of KMC.
- KMC practice is totally untouched and uncovered area in the antenatal clinic.
- Lack of time amongst the staff to offer counseling due to overcrowding in NICU.
- Poor follow up of the patient.

Cultural issues

- Misguided beliefs and attitude which are difficult to change.
- Skepticism and ignorance, resistance of the mother and family for maintenance of basic standard of hygiene and hand washing, daily bath, clean clothes and suitable dress code of KMC.
- Lack of motivation and family support by community members.
- Cultural resistance for removing bangles, rings, chains, threads etc.
- Maternal fear of suffocation, baby's fall and fear of not providing enough milk.
- Inability to understand the thermal synchrony of KMC and apnea and withdrawal from KMC on slight temperature fluctuation or respiratory problem.

Recommendations

- A national policy to follow ten steps towards successful KMC.
- Compulsory training and refresher course in skills necessary to implement these policy programs on KMC for all basic health care providers.

- Compulsory rule for all the facilities providing maternal and child care facility to get accredited for KMC practices and display a certificate with periodical renewal like baby friendly hospital.
- Strategic action plan with quality assured monitoring tools for implementation of KMC in all health care facility.
- Stringent policy of reward and punishment with a note in annual confidential report of permanent governmentemployees for adherence and non adherence to KMC practice.
- A separate budget plan for providing all necessary equipment and infrastructure for implementation of KMC, as it is one of the most effective baby mother friendly care.
- To allocate a separate budgetary provision for periodical training and certification of health care providers with lot of emphasis and stress on the quality of training.
- To make KMC as National program for targeted intervention to reduce the infant mortality rate and give it a top priority.
- To have a separate cadre of support staff exclusively and only for implementing nutrition and KMC care through national rural health mission with a provision of performance based incentive for successful implementation
- To make KMC a separate chapter in the curriculum of undergraduates and post graduates in pediatrics, preventive& social medicine and in obstetrics and gynecology with special marks allocated in theory and practical examination.
- Wide publicity through media, brand ambassador for mass awareness campaign.

References

1) Kangaroo Mother Care. A practical guide. Dept of reproductive Health and research. Geneva, world Health Organization. 1.2003

2) Chaprak N, Figueroa Z. kangaroo Foundation. Bogota, Colombia.

3) Fernandez A, Stephen NM. Training Manual on Breastfeeding Management. United nations Children's fund Mumbai. 1996

4) Gorden B. Avery, Mary Ann Fletcher, Mhairi G. MacDonald (ed): Pathophysiology and management of newborn 5th ed. Lippincott Williams, Philadelphia. 1999.

5) Richard A polin, William W Fox(ed): Fetal and neonatal Physiology. 2nd ed. WB Saunders Company, Philadelphia 1998.

6) Clinics in Perinatology. WB Saunders Company, Philadelphia 1999-2002.

7) Pediatric clinic of North America, WB Saunders Company, Philadelphia 1999-2002.

8) Training manual on Kangaroo Mother Care. Dept of Neonatology KEM hospital and Seth G.S. Medical college Mumbai.

CASE REPORT

"Mucormycosis - Silent Killer Of The Immunocompetent Adult"

Joshi Samir V., Telang Rahul A., Chandanwale Ajay S., Vishwakarma Mayashankar B

B. J. Government Medical College & Sassoon General Hospital ,Pune, Maharashtra, India.

ABSTRACT

Rhino cerebral mucormycosis is a significant cause of mortality in immunocompromised individuals. It is rare in immunocompetent patients, but intracranial extension is still life threatening. According to various reportsmortality ranges from 50-85% in intracranial extension. High index of suspicion, early identification & combined intervention in the form of Amphotericin & Surgical debridement is the key to success.

Presenting herewith a case of loculated orbito cranial mucormycosis in an immunocompetent patient. Even though there was no significant pathology left in the nose the orbitocranial offshoot of the disease proved fatal to the patient. The altered response of the body to the fungus due to immunocompetence, tumour like presentation, absence of orbital oedema, opthalmoplegia & normal vision are the features which make this case unique.

Keywords: Mucormycosis, Immuno-competent patient

Introduction

Mucormycosis is an aggressive opportunistic fungal infection of immunocompromised patient caused by Saprophytic aerobic fungi - class Phycomycetes (order Mucorales) known as Phycomycosis. This entity was first described by Paultauf[1] in 1885. The 3 genera responsible for most cases are *Rhizopus, Absidia,* and *Mucor.* Researchers have also reported cases of rhino cerebral mucormycosis caused by *Rhizomucor, Saksenaea, Apophysomyces,* and *Cunninghamella* species. Diabetes, haematological malignancy, HIV, malnutrition, burns, steroid therapy are risk factors leading to immunocompromised state.

These opportunistic pathogens are ubiquitous organisms, existing in the environment, soil, air, food, compost piles, animal excreta, and play a pivotal role in the cycle of decomposition in the natural world. Although the majority of these pathogenic fungi require oxygen, they are capable of growth in anaerobic and microaerophilic condition. If sporangia are larger than 10 μm they may remain localised to upper airway giving rise to rhino cerebral form of mucormycosis[2].

Incidence 1.7/ 1000000 (500 cases / year) in US in immunocompromised patients has been reported[2]

Rhinooculocerebral mucormycosis spreads mostly through inhalational method, disease progresses rapidly and can be fatal due to carotid artery occlusion, cavernous sinus thrombosis, and CNS infarction secondary to fungal thrombosis, leading to hemiparesis, hemiplegia, coma, and death. Other complications of rhino cerebral mucormycosis include CNS haemorrhage, abscess, and cerebritis, as well as blindness and airway obstruction from head and neck infections. Permanent residual effects of the disease occur up to 70% of the time. Neurologic function can be recovered if no irreversible damage has occurred, but morbidity is very common. Postsurgical disfigurement is likely.

Case Report

A 24 year, male farm labourer, residing at pune, complained of nasal blockade and sneezing has diagnosed with bilateral ethmoid polyposis and operated in 2008 for the same. Histopathological report showing

Fig 1. Patient With Right Eye Proptosis

Address for correspondence:
Samir V. Joshi, B. J. Government Medical College & Sassoon General Hospital ,Pune, Maharashtra, India.
drsamirjoshi@yahoo.co.in

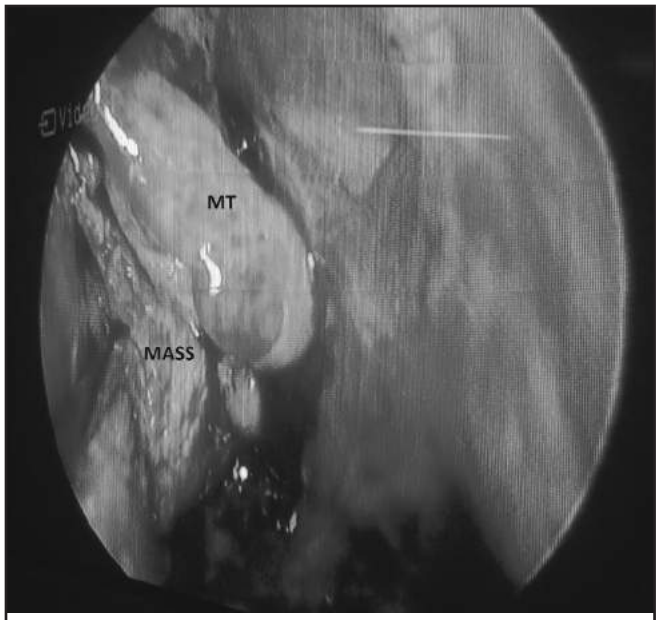


Fig. 2 Intraoperative Bulgiing Mass Seen On Right Middle Meatus

allergic fungal sinusitis, patient didn't take any further treatment.

In 2011, patients had complaint of nasal blockade for

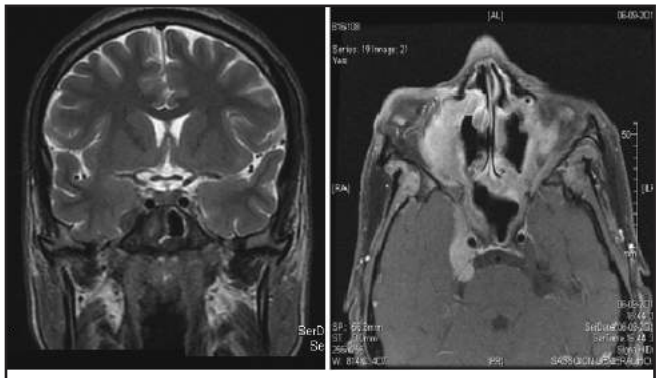


Fig 3. Ct Scan Showing Right Orbital Mass

which repeat CT scan was done, showing signs of sinusitis, patient was managed conservatively.

In December 2012, patient had bulging of right eye, with CT scan study showing invasive Sino nasal polyposis with retro orbital mass, thinning and erosion of inferomedial aspect of right orbit, erosion of lateral wall of right sphenoid, posterior lateral aspect of maxillary sinus, Patient had Endoscopic Sinus Surgery and right Caldwell luc surgery in June 2013, though post operative proptosis decreased, field of vision was also decreased, with right sided hemifacial pain. Histopathological report was inflammatory nasal polyp, negative for malignancy, tuberculosis, fungal, vascular pathology.

In September 2013, patient came to ENT OPD with clinical findings of, proptosis with right hemifacial pain, and vision had improved. But eye movement was restricted in all directions. MRI report revealing intensely enhancing soft tissue lesion involving Paranasal sinus, right orbit, bilateral cavernous sinuses right more than left & right trigeminal nerve. Infective –fungal, tubercular, inflammatory (pseudotumour) / neoplastic etiology. Less likely aggressive malignancy

Patient underwent endoscopic debulking of right orbital mass; mass was rubbery in consistency and tenacious. Histopathologyshowed mainly fibrocollagenous tissue infiltrated by acute on chronic inflammatory cells & granuloma composed of Langhan's& foreign body type of giant cells, also seen few aseptate fungal hyphae, no evidence of tumour in the tissue. Periodic acid Schiff&methenamine-silver staining confirmed the diagnosis of Mucormycosis**.**

In Post operative period patient developed left sided hemiplegia. Patient kept on anticoagulant therapy, but clinically condition did not improve and eventually patient died on seventh post operative day.

Discussion

Mucormycosis is an angio invasive fungal infection occurring in immuno-compromised but rare in immuno-competent individuals. In a critical review of literature Michele D. Mignogna et al[3] in 2010, reviewed total 212 immuno-competent / otherwise healthy patients over a period of 30 years & revealed that the most affected country is India with 94 cases (44.3%) worldwide. Even though there is no identifiable risk factor in patient with immunocompetent individuals a local immunocompromise coupled with chronic insult may foster the development of invasive fungal infection.

In pre operative diagnostic nasal endoscopy on right side the orbital wall was bulging medially with no obvious fungal infection in the sinuses. When the orbital decompression was done, it revealed diffuse rubbery & tenacious mass. Unlike granuloma it was not fragile and neither there was significant bleeding, because of its fibrous component. This fibrous component was possibly induced by immunocompetence of the

individual. It is possible that the fungus which was sequestered in the orbit developed a gradual & progressive reaction. The trigeminal involvement in our case (suggested by severe facial pain & absence of corneal reflex) but no involvement of occulomotor (no opthalmoplegia) was also an unusual feature. It was possible that extensive involvement of cavernous sinus led to strangulation of V1, V2 branches of trigeminal nerve due to angiophilic nature of fungus in discussion. This again was a modified picture as compared to fulminant mucormycosis.

Mucormycosis is known to have high mortality (62.5%)[4] particularly when cavernous sinus & internal carotid artery involved. High index of suspicion & early combined therapy of amphotericin & surgical debridement is essential in all the cases.

A lot of discussions regarding the therapeutic strategies in this disease in immuno-compromised individuals have already taken place worldwide in literature. But deceptive picture with which this patient presented wherein there was no trace of fungus in the sinuses, no chemosis of conjunctiva, oedema, opthalmoplegia & loss of vision in the orbit, the immunocompetence of the patient is very rare in literature.

Our literature search did not reveal any such case of orbito-cerebral & deceptive clinical presentation of mucormycosis.

Conclusion

The management of mucormycosis demands a multidisciplinary approach. High index of suspicion with early Intervention is required to reduce the disease associated mortality.

Acknowledgement

We would like to thank Dr. Kalpana Kulkarni and Dr. Somnath Khedkar, Pathology department for their support and guidance.

References

1. Paulltauf A. mycosis mucorina. Virchow's Arch 1885 102 43, cited by Brian M, O'Neill DDS, Alessi AS, George EB and Piro J. Disseminated rhino cerebral mucormycosis. J Oral Maxillofacial Surg 2006;**64**:326-333
2. Spellberg B, Edwards Jr J, Ibrahim A. Novel perspectives on mucormycosis: Pathophysiology, presentation and management. Clin Microbiol Rev 2005; **18:**556–69.
3. Michele D. Mignogna, Guilio Fortuna, Stefania Leuci, Daniela Adamo, Elvira Ruoppo, Maria Siano. Mucormycosis in immunocompetent patients: a case series of patients with maxillary sinus involvement and a critical review of the literature. International Journal of Infectious Disease 15 2011 e533-e540.
4. Jayalakshmi SS, Reddy RG, Borgohain R, Subramanyam C, Panigrahi M, Sundaram C, et al. Predictors of mortality in rhino cerebral mycosis. Neurol India 2007;**55**:292–7

CASE REPORT

Drug Rash with Eosinophilia and Systemic Symptoms (DRESS) Syndrome Induced by Anti-tuberculosis Drugs

Basavaraj Anita., Kadam Manasi, Kadam D B.

BJ Medical College & Sassoon general hospital, Pune

ABSTRACT

The life-threatening DRESS (drug rash with eosinophilia and systemic symptoms) syndrome is characterized by the presence of at least three of the following findings: fever, exanthema, eosinophilia, atypical circulating lymphocytes, lymphadenopathy, and hepatitis. This syndrome is difficult to diagnose, as many of its clinical features mimic those found with other serious systemic disorders. This idiosyncratic reaction occurs most commonly after exposure to drugs such as allopurinol, sulfonamides, and aromatic anticonvulsants such as phenytoin, phenobarbital, and carbamazepine. We report 19 year old male taking antituberculosis drugs for spinal tuberculous osteomyelitis for 2 months. Our patient's clinical manifestations included fever, lymphadenopathy, rash, eosinophilia, and visceral involvement (hepatitis and pneumonitis). Our patient was diagnosed as DRESS syndrome with peripheral blood smear showing eosinophilia and atypical lymphocytes; which responded to stopping the anti tuberculosis drugs. After complete resolution of all symptoms, patch test was positive for rifampicin.

Introduction

Tuberculosis, whatever its localization, is an infectious disease which can be totally cured by combining antitubercular drugs. Current therapeutic regimens with isoniazid, rifampin, pyrazinamide, ethambutol, and streptomycin have proved successful in treating tuberculosis. However, they are associated with a high rate of adverse effects that can lead to therapeutic failure. Understanding the nature and the severity of these adverse effects allows for their appropriate management. DRESS syndrome is a life-threatening pattern of a drug hypersensitivity reaction. The syndrome's complete form combines a severe febrile skin eruption (usually the first sign), hyper-eosinophilia, atypical lymphocytes, and organ involvement, such as hepatitis, myocarditis, interstitial nephritis, and interstitial pneumonitis. Lymphadenopathy and hepato-splenomegaly may be present, as may arthritis and synovitis. We experienced a case of DRESS syndrome due to anti tuberculosis drugs in a case of spine tuberculous osteomyelitis. We present this case with clinical characteristics, investigations, treatment and prevention.

Case Report

A 19 year old male, a diagnosed case of spine tuberculous osteomyelitis, had fever and pain in abdomen since 15 days. He also perceived yellowness of eyes since 4 days.Fever was present mostly in afternoon and was associated with chills and rigors and with sweating and rash all over body. There was loss of appetite due to nausea and he had vomiting 7-8 episodes per day. He suffered mild pain in abdomen in epigastric region. He was taken to a private hospital 4 days back anddiagnosed to have Dengue IgM positive. He was referred to Sassoon general hospital for further management. He had good urine output and no respiratory complaints. The patient had been taking cat I AKT since 2 months. AKT was changed and he was given liver sparing drugs ethambutol, streptomycin, levofloxacin since 4 days. There was no history of drug rash in immediate family.

On examination the patient was conscious orientedand febrilewith deep icterus. Rash was present all over body exanthematousin type. A single lymph node was palpable in right cervical region 2cmX2cmtender to

Address for correspondence:
Dr Samir V. Joshi, B-5, Hirai Niwas, Survey 54/6A, Near Mahatma Society, Kothrud, Pune 38, (India).
E-mail: drsamirjoshi@yahoo.co.in

touch. There was no matting. Tender hepatosplenomegaly was noted. Rest of the systemic examination was within normal limit.

On routine investigation, patient had deranged renal function tests and liver function tests. He had a platelet count of 3,34,000 and ESR of 35. Peripheral smear had a total leukocyte count of 50,000 with an absolute eosinophil count of 20,000 and few atypical lymphocytes. The smear showed no parasites. However, malaria antigen was positive for plasmodia falciparum. Bile salts and bile pigments were present in urine. Chest roentogram revealed right pleural effusion and right middle zone consolidation. Ultrasonography of abdomen confirmed hepatosplenomegaly. On testing hepatitis viral markers, patient was found to be HBsAg positive. However, HBeAgnegative and anti HBcIgM negative. Also HBV DNA- was negative by qualitative analysis. Biopsy of cervical lymph nodeshowed reactive lymphadenitis on histopathological examination.

On admission, he was started on Artesunate, Doxycycline and liver sparing anti tuberculosis treatment of Streptomycin, Levofloxacin and Ethambutol. On day 3 he had reaction to streptomycin after test dose, so streptomycin was stopped and Amikacin was started. Rash which was previously exanthematous progressed to become exfoliative with exfoliations seen over face, back and scrotum. Also, bullae with some central crusting over right hand and bilateral feet were seen. It was thought to be a drug rash with most likely streptomycin which was stopped as described above. Adequate hydration was maintained.

Serial laboratory parameters are shown in the tables below:

	Day 1	Day2	Day6	Day7
Creatinine	1.56	1.8	1	0.9
Urea	85	51	58	48
Total bilirubin	3.5	2.5	8.2	9.3
Direct bilirubin	2.5	1.5	6.7	6.8
SGOT	183	192	438	538
SGPT	186	204	578	578

Table 1 showing serial values of renal function tests and liver function tests

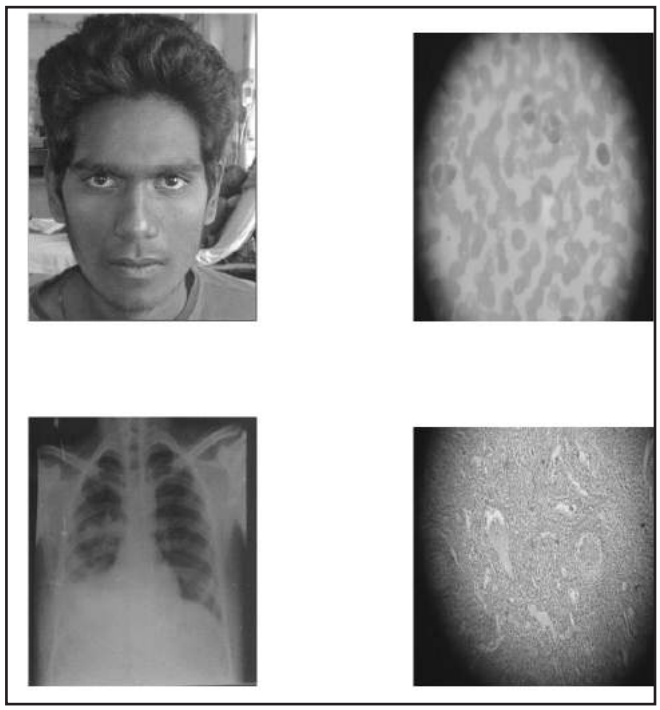


Fig.1 (left upper corner) showing deep icterus

Fig.2 (right upper corner)peripheral blood smear showing eosinophilia

Fig.3 (left lower corner)chest xray showing right middle zone consolidation with right pleural effusion

Fig.4 (right lower corner) lymph node biopsy showing reactive lymphadenitis

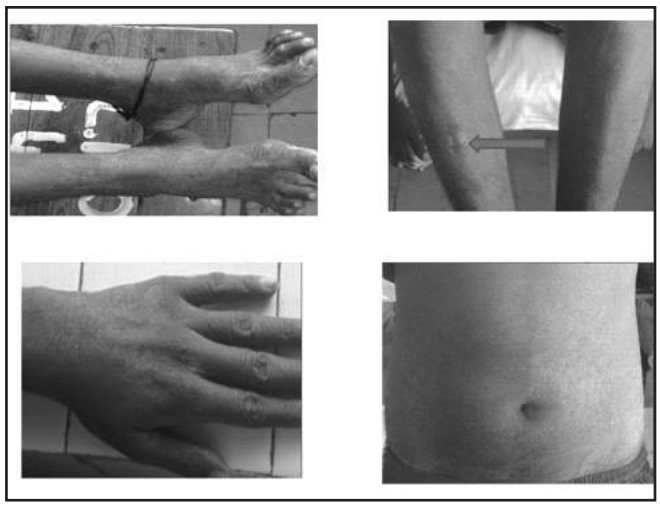


Fig.5 A selection of 4 pictures showing exfoliative dermatitis; with arrow pointing to a bullous lesion on leg

Fig. 6 Patch test done on back of the patient. Right side patches are controls. Left side patches are drugs. Results were seen after 48 hours and 72 hours. From above downwards isoniazid, rifampicin, pyrazinamide and ethambutol were tested. Itching was observed in rifampicin patch.

	Day2	Day3	Day7
TLC	50000	32000	15000
neutrophils	38	35	40
lymphocytes	18	25	25
atypical lymphocytes	Seen	Not seen	Seen
eosinophils	40	40	25
absolute eosinophil count	20000	12800	6000

Table 2 showing serial values in peripheral smear

On day 6 , LFTs continued to have an increasing trend and rash worsened. It was decided to stop all drugs; as the worsening parameters were clinically more likely due to drugs.So, AKT and Doxycycline was stopped. Artesunate was stopped on 7th day.

Serial lab parameters after stopping the drugs were as below,

	Day9	Day10	Day12	Day13	Day18	Day20
creatinine	0.9	0.9	0.9	0.9	1.0	1.0
urea	27	20	20	20	18	22
Total bilirubin	9.7	10.7	12.2	16.0	10.0	7.7
Direct bilirubin	6.7	7.0	7.0	8.5	6.8	5.7
SGOT	732	1132	741	528	140	82
SGPT	600	638	557	475	194	114

Table 3 showing serial values of renal function tests and liver function tests after stopping drugs

	Day12	Day18
TLC	15000	11000
neutrophils	73	70
lymphocytes	25	28
atypical lymphocytes	Seen	Not seen
eosinophils	2	1
absolute eosinophil count	300	110

Table 4 showing serial values in peripheral smear after stopping drugs

In further 10 days, hepatosplenomegaly resolved to become non palpable. Also, liver enzymes and bilirubin had a decreasing trend as shown in table above. Patient regained appetite and icterus resolved to minimal yellowish tinge.

Patch test was done. Itching was in the region where rifampicin was applied. So, the final diagnosis of Drug reaction eosinophilia and systemic symptoms syndrome (DRESS Syndrome) due to AKT (rifampicin) was made.

On day 18, amikacin, levofloxacin, ethambutol were reintroduced and patient was discharged and followed up. The patient continued with the above regimen for about 2 months after which his liver function tests were normal. Slow re indroduction of isoniazid and rifampicin were done.

Now the patient is on the same with no symptoms since 6 months.

Discussion

DRESS syndrome stands for Drug Reaction with Eosinophilia and Systemic Symptoms.

Bocquet et al coined the term DRESS syndrome in 1996. It is a severe life threatening drug reaction which is idiosyncratic and multi-system reaction. It is a clinical triad of fever, rash and internal organ involvement (e.g. hepatitis, myocarditis, nephritis or pneumonitis) occurring 1 - 8 weeks after medicine exposure (long

latency).

The diagnosis of DRESS syndrome requires the simultaneous presence of three criteria :(a) drug-induced skin eruption, (b) eosinophilia ⩾ 1.5 x 109/l or atypical lymphocytes, and (c) at least one of the following systemic abnormalities: enlarged lymph nodes at least 2 cm in diameter, hepatitis (transaminases ⩾ 2N),interstitial nephropathy, interstitial lung disease, or myocardial involvement. Other synonymous names of DRESS are HHS (Hypersensitivity Syndrome), AHS (Anticonvulsant Hypersensitivity Syndrome), DIHS (Drug-Induced Hypersensitivity Syndrome), DIDMOHS (Drug-Induced Delayed Multiorgan Hypersensitivity Syndrome), and Drug-Induced Pseudolymphoma.

Clinical Features

Fever is a common early feature. Feverpreceeds a widespread and long-lasting papulopustular or erythematous skin eruption; which often progresses to exfoliative dermatitis. The severity of the skin-related changes does not correlate with the extent of internal organ involvement, which may remain asymptomatic or be life-threatening. The incidence of DRESS with anticonvulsants has been estimated at 1 in 10,000 exposures.

The skin disease is characterized by an infiltrated maculopapular eruption and facial edema, often more marked in the peri-orbital regions. The lesions develop first on the trunk then spread to the rest of the body. The initial edematous maculopapular lesions convert to blisters, vesicles or pustules. The histological finding lack specificity, consisting mainly of a lymphocytic inflammatory infiltrate and, less prominently, of eosinophils in the papillary dermis.

Table 5: Incidence Of Organ Involvement In Dress Syndrome

Organ involved	% of patients
Liver	80
Kidney	40
Pulmonary	33
Cardiac /muscular	15
Pancreas	5

Table 6: Incidence Of Hematologic Abnormalities In Dress Syndrome

Abnormality	% of patients with abnormality
Atypical lymphocyte	63
Eosinophilia	52
Lymphocytopenia	45
Thrombocytopenia	25
Lymphocytosis	25

Table7: Medicines more often reported to cause DRESS Syndrome:

Abacavir	Sulphonamides
Lamotrogine	Dapsone
Carbamazepine	Nevirapine
Phenytoin	Allopurinol
Mexiletine	Diltiazem
Clomipramine	Oxicam
Minocycline	NSAIDs
Captopril	Atenolol
Trimethoprim	Gold salt
Sulphasalazine	Phenobarbitone
Isoniazid	Azathioprine

Pathophysiology

No proved data exists. The prevailing hypotheses are described below. Defective detoxification of reactive oxidative metabolites and its accumulation leads to onset of symptoms after long latency. A genetic predisposition and slow acetylator status may contribute. Also, a viral co-infection issuspected; specifically, a reactivation of the human herpes virus 6 (HHV6). Eosinophil accumulation is also thought to account for the internal organ involvement. Eosinophilsdegranulate to release an array of cytotoxic granule cationic proteins that are capable of inducing tissue damage and dysfunction by causing mast cell and basophil degranulation.

Treatment

A high index of suspicion of a medicine-related cause is essential. Diagnosis is based on clinical presentation (i.e. the triad of fever, rash and organ involvement), supported by a finding of eosinophilia and abnormal liver function tests. A temporal relationship between medicine use and the onset of the syndrome is the most

important indicator of causality. Treatment consists of immediate withdrawal of all suspect medicines, followed by supportive care of symptoms. Patients who develop DRESS must avoid re-exposure to the causative medicine/s.

Antipyretics should be prescribed to reduce the effect of fever. Skin care may include the use of topicalsteroids to alleviate symptoms. In case of exfoliativedermatitis, warming of the environment and correction of electrolyte disturbancesshould be done. High caloric intake should be encouraged and all precautions are undertaken for prevention of sepsis.

Systemic corticosteroids are generally used in the more severe DRESS cases involving significantexfoliative dermatitis, pneumonitis and/or hepatitis. The effect of corticosteroids on prognosis is unknown as controlled clinical trials are lacking. Relapses may occur as corticosteroid doses are tapered, and treatment may need to be continued for many weeks. Care should be taken as the use of systemic steroids might produce viral reactivation.

Cross hypersensitivity is common between the three main aromatic anticonvulsants (i.e. phenytoin, carbamazepine and phenobarbitone), and all three must be avoided by patients who have experienced reaction with any one of these medicines. Cross hypersensitivity may also occur with NSAIDs such as the oxicams, e.g. piroxicam, tenoxicam.

High doses of N-acetylcysteine could be beneficial in anticonvulsant drug reactions as it is a known precursor of glutathione, a molecule involved in the detoxification pathway of several drugs including anticonvulsants.

It appears likely that the incidence of severe drug reaction may be reduced with proper initial dosing and dose escalation (Primary Prevention). First degree relatives should be alerted to their elevated risk of such reactions to the same compound(s). Patients should be advised to avoid re-exposure to these compounds (Secondary Prevention). Adequate treatment alternatives, when possible, have to be found; so that same drug need not be re-introduced.

Conclusion

The diagnosis of DRESS should be highly suspected with the presence of skin rash, liver involvement, fever, hypereosinophilia, and lymphadenopathy. Prompt withdrawal of causative drug is mandatory. Steroids play a role in severe DRESS syndrome. Reexposure of drugs should be avoided. Severe drug reaction may be reduced with proper initial dosing and dose escalation.

Acknowledgements

1. Dr. Chandanwale,Dean, B.J.Medicalcollege,Pune
3. Department of pathology, Sassoon general hospital, Pune
4. Department of dermatology, Sassoon general hospital, Pune

References

1. Management of Drug Rash with Eosinophilia and Systemic Symptoms (DRESS Syndrome):An Update S. Tas T. SimonartDermatology 2003;206:353–356
2. Drug Rash with Eosinophilia and Systemic Symptoms (DRESS)Syndrome Induced by Celecoxib and Anti-tuberculosis DrugsJoo Ho Lee, Hye-Kyung Park J Korean Med Sci 2008; 23: 521-5
3. Drug Hypersensitivity Syndrome Prescriber Update 2003;24(2):22-23Marius Rademaker, Hon. Associate Professor, Dermatology Department, Waikato Hospital, Hamilton; and Tim Maling, Associate Clinical Professor of Internal Medicine and Clinical Pharmacology, Wellington Hospital.
4. The DRESS Syndrome: A Literature Review The American Journal of MedicineVolume 124, Issue 7, Pages 588-597, July 2011

CASE REPORT

Overlap of Muscle Eye Brain Disease and Walker Warburg Syndrome- A Case Report

Kumar Vikram S, Kulkarni Rajesh K, Valvi Chhaya T, Kinikar Aarti A, Khadse Sandhya S.

B J Medical College, Pune

ABSTRACT

Muscle-Eye-Brain Syndrome (MEBS) is a rare autosomal recessive genetic disorder characterized by 3 phenotypically similar syndromes which include Walker-Warburg syndrome (WWS), Fukuyama Congenital Muscular Dystrophy (FCMD), and Muscle-Eye-Brain disease (MEBD).FCMD and MEBD are common in countries like Japan and Finland. Two case reports i.e. one each of FCMD and MEBD have been published in Indian literature. We report a case of overlap between WWS and MEBD which, to the best of our knowledge, has not yet been reported in the Indian literature.

Keywords: Muscle Eye Brain syndrome, Walker –Warburg syndrome, Overlap

Case Report

A 14 month old baby boy, the only child of 3rd degree consanguineous marriage presented to us with upper respiratory tract infection and one episode of febrile seizure. There were no episodes of convulsions in the past. During the ante-natal period, a single screening ultrasound at 9th month of pregnancy was done which was suggestive of fetal hydrocephalus. Baby was born by a post term elective caesarean section delivery with history of birth asphyxia requiring resuscitation and NICU admission for a week. Family history was not contributory. Developmentally there was a gross delay in all the milestones. Anthropometric indices were normal except for microcephaly. Convergent squint with right eye microphthalmia was present. Pupils were unequal and non reactive. Generalized hypotonia with depressed reflexes and upgoing plantars were present. Power in all the limbs was 4/5.There was no muscle hypertrophy or wasting. Other systemic examination findings were within normal limits.

The ophthalmic examination showed high myopia of the left eye with posterior synychiae, vitreous floaters, peripheral vasculitis and severe choroidal exudates (Fig 1). The fundus examination of the right eye was not possible due to posterior synechiae. Serum creatine phospho kinase (CPK) was elevated at 463 U/l. Motor nerve conduction studies showed low amplitude of motor response with mild sensory neuropathy in lower limbs. EMG was normal.

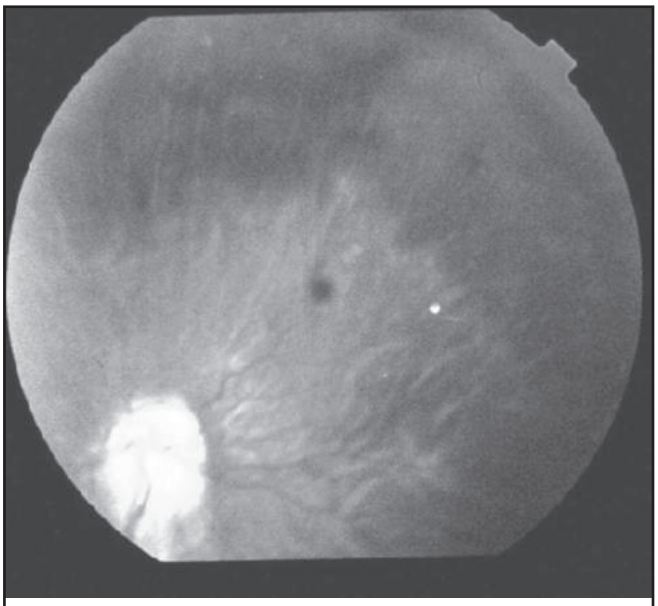


Figure 1: Fundus of the left eye

Cranial MRI showed Dandy-Walker variant with moderate to gross hydrocephalus. Corpus callosum was stretched. Polymicrogyria in bilateral frontal regions with irregular gray-white matter junction was seen. Hypoplastic pons, inferior vermis with fusion of collicular plates and cerebellar cysts were present. Delayed myelination in bilateral parieto-occipital and frontal regions was present(Fig.2a). Right eye ball was smaller than the left eye (Fig 2b). Muscle biopsy was not

Address for correspondence:
Dr Kulkarni Rajesh K, Department of Pediatrics,. B J Medical College, Pune.
Email : docrajesh75@yahoo.com

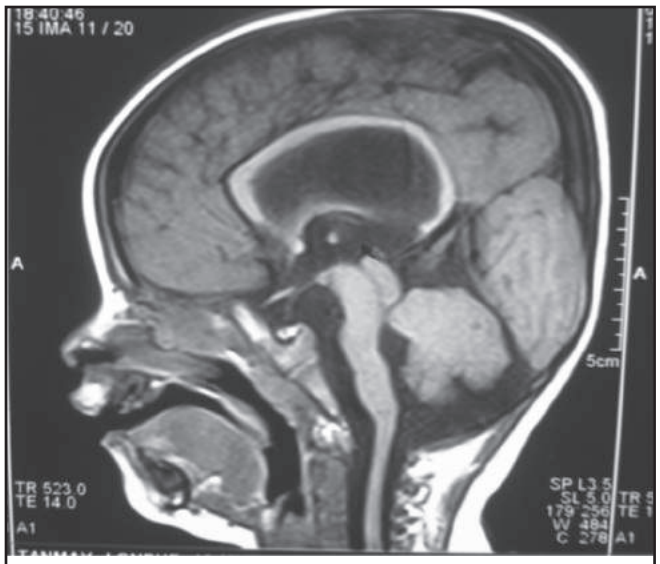


Figure 2a: MRI sagittal section showing characteristic changes.

done as parents refused consent.Genetic analysis could not be done as it is currently not available in India.

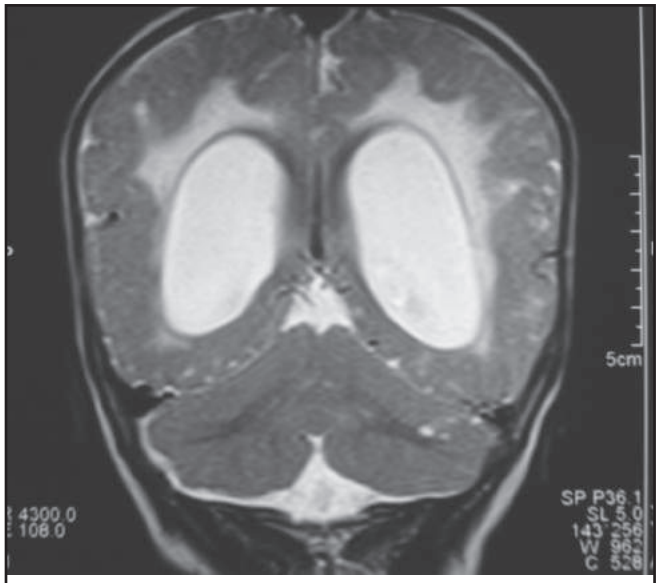


Figure 2b: MRI Coronal section. Note right eye is smaller than the left.

Discussion

Congenital Muscular Dystrophy (CMD) is divided into CMD with central nervous system (CNS) abnormalities and CMD without CNS abnormalities. FCMD, WWS and MEBD are categorized as CMD with CNS abnormalities; also called as α-dystroglycanopathies. FCMD is milder than WWS and MEBD, particularly with respect to brain and ophthalmologic involvement. [1]

Muscle-Eye-Brain Syndrome (MEBS) is a rare autosomal recessive genetic disorder characterized by 3 phenotypically similar syndromes. The clinical possibilities in this floppy infant with delayed milestones, raised CPK, ophthalmic findings and characteristic cranial MRI findings include MEBD, WWS, FCMD or an overlap of the three conditions. Brain MRI is useful in distinguishing between the 3 clinical syndromes. Comparison of the neuropathological abnormalities in FCMD, MEBD, and WWS reveals[1,2]:

- **Brainstem:** Usually normal (rarely hypoplastic) in FCMD; almost always small in MEBD; very small and kinked at the junction of the midbrain and pons in WWS.
- **Cerebellum:** Usually normal (occasionally small) in FCMD; always small in MEBD; very small in WWS.
- **Cerebellar cysts:** Observed in all three disorders.
- **Hydrocephalus:** Rare in FCMD; common in MEBD; almost universal in WWS Dandy-Walker malformation and cephaloceles are not seen in MEB (these are features seen in WWS). [4]

Table 1. shows the Serum CPK levels and the muscle biopsy findings.[3]

Disorder	Serum CK Concentration [1]	Muscle Biopsy	
		Histology	Immunohistochemistry
Defects of structural protein			
Laminin alpha-2 deficiency (MDC1A)	Variable CK from mildly elevated to markedly elevated (before muscle wasting is severe)	Neonatal: myopathic or dystrophic with or without inflammatory changes End stage: dystrophic changes	Merosin: partial or total deficiency [2] Laminin alpha-5: overexpression
Collagen VI-deficient CMD	Normal or mildly elevated (~2-3x normal)	Fiber size variation Variable necrotic or regenerative fibers Variable endomysial fibrosis	Collagen VI: • Variable reduction in muscle • Abnormal secretion in fibroblast cultures • Deficiency difficult to detect if partial [2]
Defects of glycosylation			
Dystroglycanopathies	Elevated: 2-15x normal	Myopathic or dystrophic	Merosin: normal or reduced Glycosylated alpha-dystroglycan: deficient Beta-dystroglycan: normal
Defects of proteins of the endoplasmic reticulum			
SEPN-related CMD	Normal	Variable fiber size Occasional necrotic fibers Minimally increased endomysial connective tissue	Merosin and collagen VI: normal
Defects of nuclear envelope proteins			
L-CMD	2-5x normal	Dystrophic changes (deltoid> quadriceps) Nonspecific myopathic changes (quadriceps) Markedly atrophic fibers, most often type 1, occasional positive inflammatory markers	Merosin: normal Alpha-dystroglycan: possible secondary abnormal expression

Table 1. Serum CK Concentration and Muscle Biopsy Findings in Congenital Muscular Dystrophies

1. Normal serum CK concentration = 35-160 µ/L (may vary slightly in different laboratories)
2. Ideally using antibodies recognizing different regions of the protein
3. May need co-staining with merosin, perlecan, or other proteins to demonstrate abnormal sarcolemmal staining of collagen

Table 2. shows the different genotypes of the four phenotypes of MEBS.[1]

Disease Name	Gene Symbol	Chromosomal Locus	Protein Name	Severity of Findings		
				Muscle Dystrophy	Eye	Intellectual Disability
FCMD	*FKTN (FCMD)*	9q31	Fukutin	Moderate-severe	Mild	Moderate
MEBD	*POMGNT1*	1p34-p33	Protein O-linked-mannose beta-1,2-N-acetylglucosaminyltransferase 1		Severe [1]	
	FKRP [2, 3]	19q13.3	Fukutin-related protein			
Overlap between MEBD and WWS	*LARGE* [2, 3]	22q12.3-q13.1	Glycosyltransferase-like protein LARGE	Mild	Severe [1, 4]	Severe
	POMT2 [3]	14q24.3	Protein O-mannosyl-transferase 2			
WWS	*POMT1*	9q34.1	Protein O-mannosyl-transferase 1		Severe [4]	

FCMD = Fukuyama congenital muscular dystrophy

MEBD = muscle-eye-brain disease

WWS = Walker-Warburg syndrome

1. Severe congenital myopia, congenital glaucoma, pallor of the optic discs, and retinal hypoplasia
2. Mutations in *FKRP* and *LARGE* also cause forms of congenital muscular dystrophy (MDC1C and MDC1D, respectively) associated with abnormal glycosylation of alpha dystroglycan [Muntoni 2004].
3. Mutations in *FKRP*, *LARGE*, and *POMT2* give rise to phenotypes that overlap between MEBD and WWS.
4. Microphthalmia, retinal detachment, retinal hypoplasia, anterior chamber malformation, cataracts

No definitive treatments exists for MEBS. Management should be tailored to each individual and each specific subtype. A general approach to appropriate management can prolong survival and improve quality of life for individuals with MEBS. Broadly it includes[3] weight control to avoid obesity; physical therapy and stretching exercises to promote mobility and prevent contractures; use of mechanical assistive devices, such as canes, walkers, orthotics, and wheelchairs as needed to help ambulation and mobility; monitoring and surgical intervention as needed for orthopedic complications such as foot deformity and scoliosis; monitoring of respiratory function and use of respiratory aids when indicated; specifically, some individuals may benefit from assisted cough, noninvasive ventilation, or mechanical ventilation via tracheostomy; social and emotional support and stimulation to maximize a sense of social involvement and productivity and to reduce the sense of social isolation common in these disorders.

References

1. Gene reviews: Fukuyama Congenital Muscular Dystrophy [Internet] (Cited 2006 Jan 26) Available from http://www.ncbi.nlm.nih.gov/books/NBK1206/
2. Raghavendra S, Devasia B, Thomas SV. Muscle - eye - brain disease. Ann Indian Acad Neurol 2006;9:49-50
3. Gene reviews: Congenital Muscular Dystrophy Overview [Internet] (Updated 2011 Jan 4;cited 2001 Jan 22)Available from http://www.ncbi.nlm.nih.gov/books/NBK1291/.
4. Garg A, Gulati S, Gupta V, Kalra V. Congenital muscular dystrophy with characteristic radiological findings similar to those with Fukuyama congenital muscular dystrophy. Neurol India 2004;52:496-8

CASE REPORT

Parkes Weber Syndrome Involving Right Lower Limb: A Case Report

Benod Kumar K.

Department of General Surgery

Introduction

- Vascular malformations (VMs) are developmental abnormalities of the vascular system.
- Malformations may involve any segment of the vascular tree; arteries, capillaries, veins or lymphatics.
- High-flow arterio-venous (AV) malformations are associated with shunting of large amounts of arterial blood into the venous system; these lesions can have dynamic and dramatic hemodynamic manifestations, such as massive arteriolisation with gross venous engorgement, organomegaly of concerned anatomical region and high-output cardiac failure.
- Patients with Parkes Weber syndrome have clinically significant micro fistulous or macro fistulous arterio-venous shunts, affecting usually one extremity. The patient has dilated, frequently visible pulsatile varicose veins and other visible signs of AV shunting. The abnormality is sporadic; it is likely a somatic mutation. There is frequent intraosseous involvement.
- Presence of high AV shunts differentiates Parkes Weber syndrome from Klippel- Trenaunay syndrome which is a clinical triad of capillary malformation; soft tissue and bone hypertrophy; venous and lymphatic malformations.
- The mutations in RASA 1 gene leads to Parkes Weber syndrome characterised by the presence of multiple, small (1-2 cm in diameter) capillary malformations mostly localized on the face and limbs.[1]
- We are presenting a case of Parkes Weber syndrome involving right lower limb.
- 32 years old female patient came with C/O torrentially bleeding ulcer on the right forefoot since 5 days, which stops on pressure on the bleeding ulcer and elevation of the leg.
- On giving history of present illness her mother described the following events since her birth From birth to 6yrs of age no signs and symptoms. At 6 yrs noticed increased size of right leg as compared to left- Shown to a doctor at Aurangabad who did doppler study of right lower limb which showed abnormal vasculature (Details not available) and advised no active management.
- The discrepancy between the two lower limbs went on increasing to the age of 12 years without any other symptom, which was treated by elastic stockings and specialised shoes
- She got married at the age of 22 years, the 1st pregnancy went uneventful, during 2nd pregnancy the right leg size increased exponentially and she developed an ulcer near right little toe which was not bleeding. The limb size decreased and the ulcer healed after the second delivery.
- After 2 years she developed an ulcer over right forefoot which used to bleed torrentially after trivial trauma. For the same she underwent angiography in Ruby hall clinic showing AV malformations in the foot (Details not available). Again she was advised conservative treatment.
- Since past three years she is not using her right lower limb for the fear of bleeding.

Address for correspondence:
Benod Kumar K., Department of General Surgery

- Embolisation of the feeding vessel was tried in Ruby hall clinic 3 years back which went unsucessful.

Physical examination

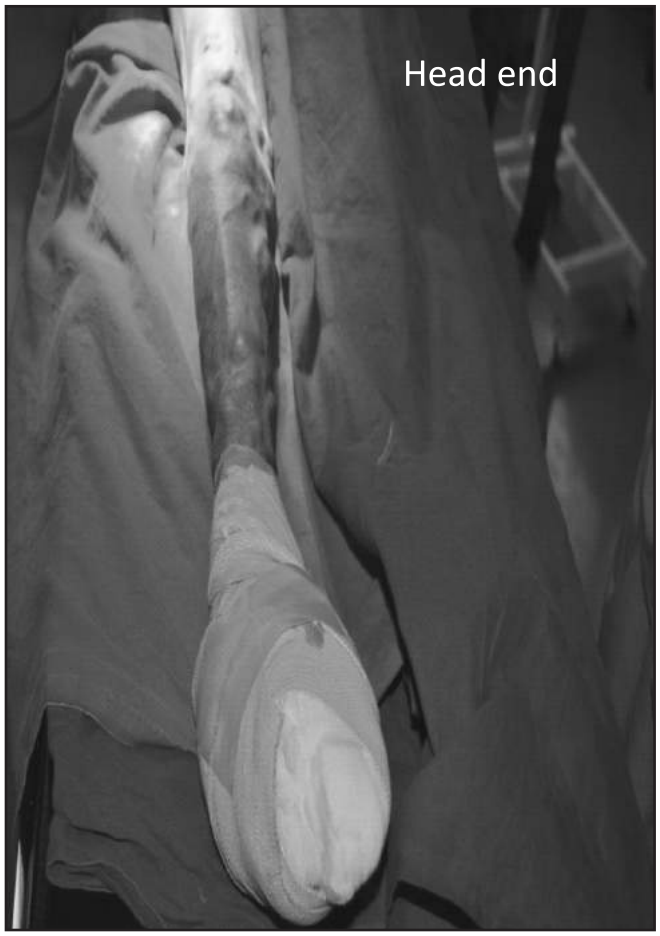
- General examination: A thin built lady with severe pallor, afebrile P: 130/min , water hammer pulse was noted
- Machinery murmur was discernible over the entire vascular system.
- BP readings : Supine position

  150/0 mm of Hg - right arm.

  150/0 mm of Hg - left arm.

  160/0 mm of Hg - left leg.

  160/0 mm of Hg – right leg
- Local examination : A 3 X 2 cm oval shaped ulcer is present over the dorsum of the right foot, with continuous and ferocious spurting of arterial blood.
- The right lower limb has multiple dilated, tortuous **VEINS** from mid thigh more on medial aspect of knee, to the dorsum of the foot which are **PULSATILE.**



- Length of extremities

  Lt lower limb – 116 cm

  Rt lower limb – **120** cm
- CVS : s1, s2 loud with continuous machinery murmur.

Clinical diagnosis

- CONGENITAL ARTERIO VENOUS MALFORMATION OF RIGHT LOWER LIMB.

  PARKES WEBER SYNDROME

Investigations

- Hb **5.5** gm%
- LFT, RFT, S. Electrolytes, S. Proteins, were within normal limits.
- Chest x-ray shows **cardiomegaly**.
- 2D – ECHO

  Ejection fraction – 70%

  Dilated left ventricle.

  Hypercontractile left ventricle.

Angiography

- Angiography was done in January 2013 in a KEM hospital, Mumbai Interventional radiology department which showed
- Hypertrophied

  Right profunda femoris and its branches.

  Right superficial femoral artery

  Right popliteal artery with normal trifurcation,

- Diffuse arteriovenous malformations noted involving right leg and foot supplied by anterior and posterior tibial and peroneal arteries.
- IMPRESSION: Findings consistent with diffuse complex AV malformations involving right leg and foot supplied by anterior, posterior tibial arteries and peroneal arteries
- NO ENDOVASCULAR MANAGEMENT IS FEASIBLE
- Digital subtraction angiography done in INLAKS and BUDHRANI HOSPITAL on 4th march 2013
- AV fistula present below level of malleolus of right foot , all other arteries are hypertrophied and dilated.
- Aneurysm of profunda femoris and multiple aneurysms of deep popliteal and femoral artery.
- Diagnosed the case as PARKES WEBER SYNDROME

Treatment

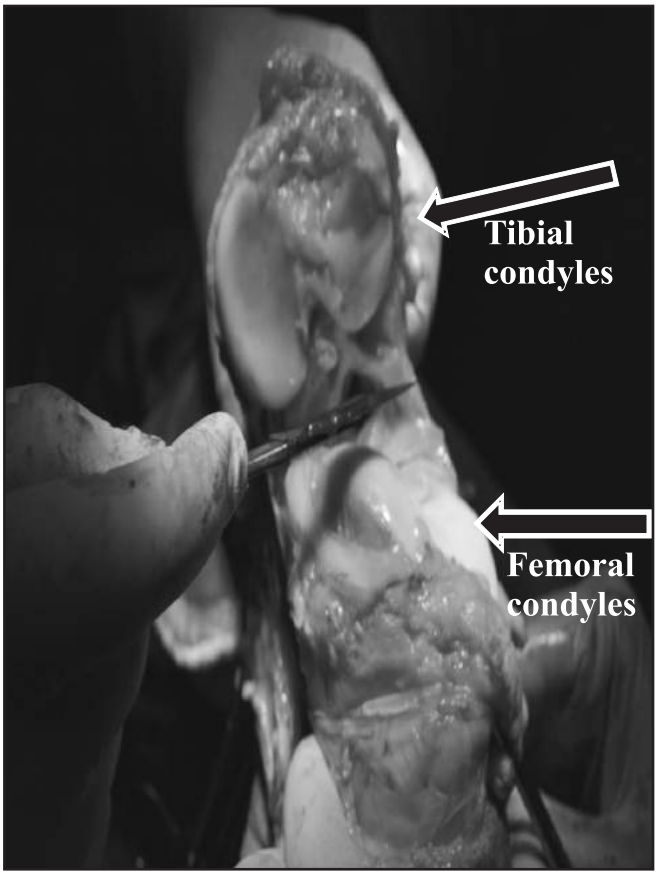
- Medical management:

  To decrease the preload IV labetalol 1mg / min in infusion pump was given as advised by the physician.

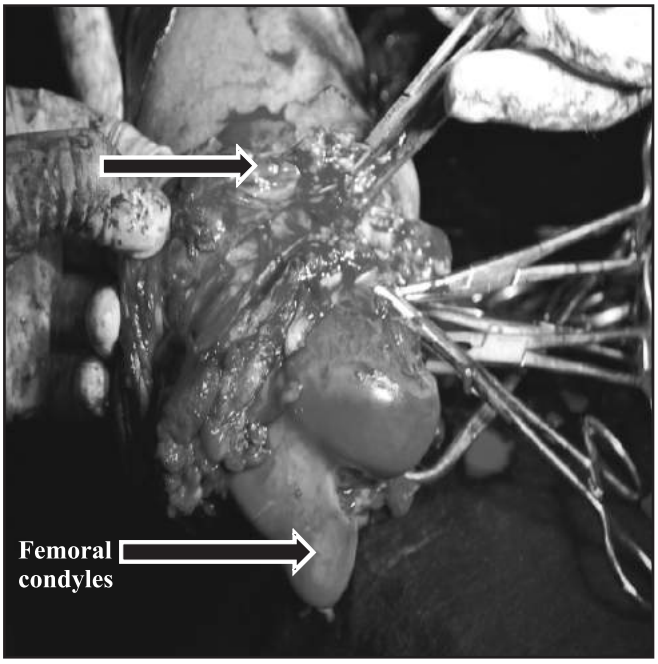
- Surgical management:

  By keeping in mind the opinion of interventional radiologist and vascular surgeons collective decision was taken to DISARTICULATE right knee joint.

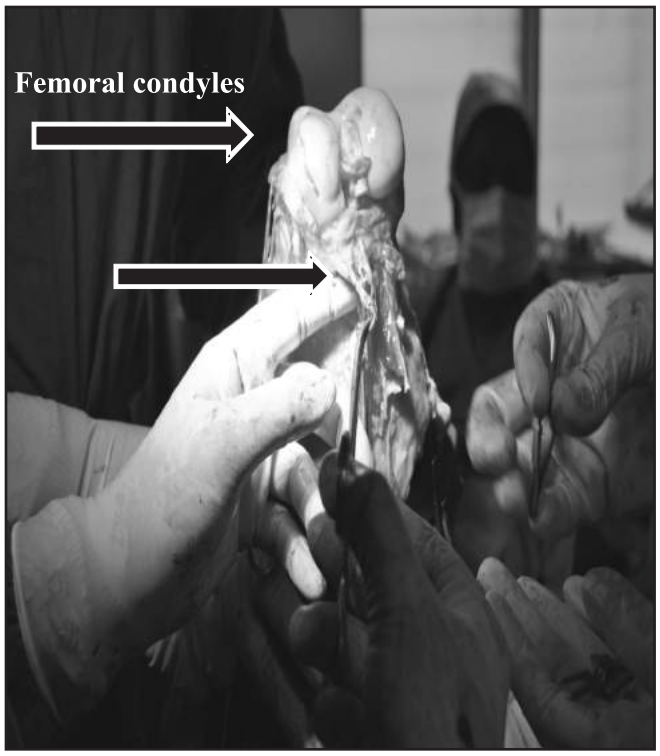
- We intentionally avoided amputation through bone to avoid the risk of uncontrollable bleeding from the bone end. To minimize intraoperative bleeding eschmarch bandages were applied, and tourniquet was inflated above the knee.



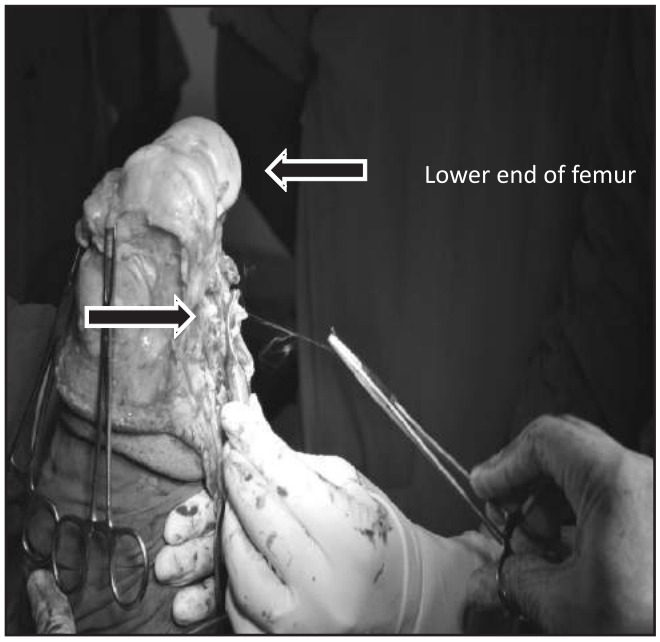
- Dysarticulated knee showing femoral condyles and tibial condyles



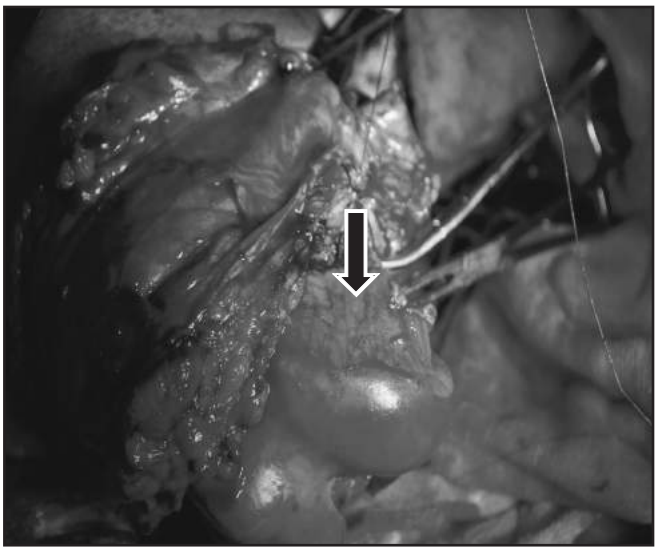
- Skin and subcutaneous tissue over knee joint showing abnormal vascularity.



- Dilated Arteries and veins of popliteal fossa



Ligation of popliteal vessels



Lower end of femur showing showing abnormal vasculature over periosteum

Discussion

- Management of AVM varies, with a conservative approach adopted for patients that are asymptomatic or have minor symptoms. If treatment is required, techniques that may be used include catheter embolization or direct percutaneous sclerotherapy.[2]
- Multidisciplinary approach is central to the effective management of AV malformations.

  The Treatment of Diffuse Congenital Arteriovenous Fistulae of the Leg by L T Cotton Mch FRCS and B J Sykes FRcs (King's College Hospital, London, 6 Proc. roy. Soc. Med. Volume 62, March 1: 1965.
- Despite multiple procedures, total eradication is often not achieved. For some patients, limb amputation becomes necessary and carries significant risk. Cardiac decompensation is an absolute indication for surgery.[3]
- Schwartz and associates reported on 82 patients treated at the Mayo clinic for arteriovenous malformations; 18 patients required amputation at various levels of extremity. Still, for many patients, amputation means cure and a prosthesis offers the possibility of functional recovery.[4]
- *Phuong D. Nguyen Oriana D. Cohen Evan P. Nadler Arteriovenous malformations , text book of surgery. Chapter no 112 volume 18,2009*

- *Peter gloviczki et al; vascular malformations, chapter no 11, volume no 10,page 183- 198, 2005.*
- In our patient, repeat embolisation would not have been appropriate as it was attempted but failed once due to the diffuse nature of the AVM with multiple nidi and hyperdynamic circulation. Our patient had a life threatening, symptomatic, non functional lower limb AVM.
- In this situation we believe that disarticulation should be explained at the patient outset.
- We report a case of congenital AVM of the lower limb causing cardiac decompensation. The patient was safely and successfully treated by performing a knee disarticulation.
- In the year 2010 a case of upper limb disarticulation for a patient of congenital AV malformation has been reported .
- Upper-Limb Disarticulation for Life-Threatening High-Flow Arteriovenous Malformation: Report of a Case[5].

  Yi-Hsuan Su, MD, Vasu Karri, BSc(Hons), MRCS, MSc, Lai-Fan Lu, MD, and Hung-Chi Chen, MD, FACS Department of Plastic & Reconstructive Surgery, E-Da Hospital/I-Shou University, No 1 Yi-Da Road, Jiau-Shu Village, Yan-Chao Township, Kaohsiung County, Taiwan, Republic of China Vol. 198 , no 8: 2010

Conclusion

- Arteriovenous malformations (AVM) are high-flow lesions having a direct connection between an artery and vein. Treatment of such lesions remains a surgical challenge.
- Those affecting the lower limb and causing cardiac decompensation are rare.
- Despite multiple procedures, total eradication is often not achieved. For some patients the affected limb becomes life threatening in which limb disarticulation/ amputation becomes life saving surgery.

References

1) Bayrak-Toydemir P, Stevenson D. RASA1-Related Disorders. 2011 Feb 22. In: Pagon RA, Bird TD, Dolan CR, et al., editors. GeneReviews™ [Internet]. Seattle (WA): University of Washington, Seattle; 1993-. Available from: http://www.ncbi.nlm.nih.gov/books/NBK52764/

2) The Treatment of Diffuse Congenital Arteriovenous Fistulae of the Leg by L T Cotton Mch FRCS and B J Sykes FRcs (King's CollegeHospital, London, 6 Proc. roy. Soc. Med. Volume 62 March 1 1965.

3) Phuong D. Nguyen Oriana D. Cohen Evan P. Nadler Arteriovenous malformations, text book of surgery. Chapter no 112 volume 18,2009

4) Peter gloviczki et al; vascular malformations, chapter no 11, volume no 10,page 183- 198, 2005.

5) Yi-Hsuan Su, MD, Vasu Karri, BSc(Hons), MRCS, MSc, Lai-Fan Lu, MD, and Hung-Chi Chen, MD, FACS Upper-Limb Disarticulation for Life-Threatening High-Flow Arteriovenous Malformation: Report of a Case. Vol. 198 , no 8 2010.

CASE REPORT

Technique Of Laparoscopic Single Trocarappendectomy Using Operative Laparoscope

Ekbote G.R., Pathan Sarfaraj, Makam Shrikant D., Rajpal Lalit

Dept. of General Surgery, B.J.G.M.C. AND Sassoon General Hospital, PUNE-1, MAHARASHTRA (INDIA).

ABSTRACT

The authors report their experience with single trocar laparoscopic appendectomy using operative laparoscope. From May 2011 to November 2013 total 50 patients, mainly in young age group (between 20-40 yr) underwent the procedure, conversion noted in 3 patients. There were no major complications and no mortality in the series. The advantages exceeds that of conventional laparoscopic surgery like decreased number of incision, decreased number of ports, thereby decreased pain and decreased hospital stay with early return to routine activities and finally excellent cosmesis with decreased cost compared to other minimal invasive surgeries.

Keywords: Operative laparoscope, Single trocarrium leprae, Renal manifestations in Hansens disease.

Introduction

Acute appendicitis is the most frequent condition causing acute abdomen in young adults, requiring emergency surgical treatment. Fitz et al first described appendicitis in 1886[1] and McBurney presented series of cases of surgically treated appendicitis in 1889[2], since then appendectomy has been established as the standard treatment for appendicitis.

Semm in 1983 perfomed first laparoscopic appendectomy, since then it is increasingly used and it has gone under several modification using umbilicus (natural scar) as site of entry. These are naturalorifice transumbilical surgery (NOTUS), single-port access (SPA), one-port umbilical surgery (OPUS), transumbilicalendoscopic surgery (TUES), single-site laparoscopy(SSL), single-incision laparoscopic surgery (SILS), single-instrument port laparoscopic surgery (SIMPL), andlaparoendoscopic single-site (LESS) surgery[3], but all these increases tediousness and cost of the simple procedure, few increase rate of complications also. Here we have modified single port surgery using single trocar and operative laparoscope for the surgery. The operative laparoscope is long term forgotten tool in the arsenal of surgeon which is mainly used by gynecologist for performing laparoscopic tubal ligation.

Aims And Objective

1. Evaluation of the procedure in terms of cost of surgery and hospital stay
2. Evaluation of the procedure in terms of port site infection and minimum number of scar.
3. To study instrument manipulation.
4. To study the rate of conversion to multiport surgery or open surgery.

Materials And Method

P50 cases of well diagnosed acute appendicitis between age group of 20-40 yr of both sexes were selected for the procedure in accordance with following inclusion and exclusion criteria.

Inclusion Criteria

- Non perforated appendix
- Young male(20-40yr)
- Young female(20-40yr)
- Obese patient
- Patient fit for general anesthesia
- Patient willing for procedure.

Exclusion Criteria

- Gangrenous appendicitis
- Appendicular perforation

Address for correspondence:
Ekbote G.R., Dept. of General Surgery, B.J.G.M.C. AND Sassoon General Hospital, PUNE-1, MAHARASHTRA (INDIA).

- Pregnancy
- Patient not fit for general anesthesia
- Patient not willing for procedure

Clinical Features, Diagnosis And Investigations

Patients of acute appendicitis presents with pain in abdomen followed by nausea, vomiting and fever on examination there is tenderness at McBurneys point, rebound tenderness in right iliac fossa, and presence of tachycardia. There is increase in WBC as well as in absolute neutrophil count; USG abdomen shows presence of long tubular thickened edematous, non compressible structure in right iliac fossa with diameter of 6 mm or more.

These patients further evaluated for fitness for general anesthesia with routine hemogram, sr. electrolytes, sr. creatinine, sr.urea, sr. bilirubin and chest x ray if necessary.

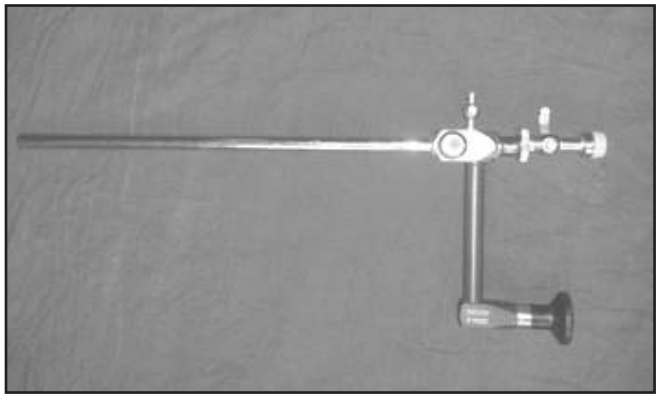


Image 1: Operative laparoscope

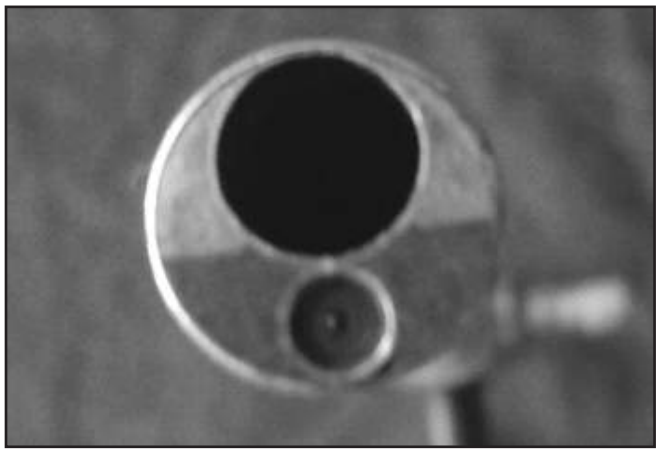


Image 2: Tip of operative laparoscope

Method

GA given to patient in supine position, table slightly tilted, so as the right side is upward and slight head low is given so as to facilitate exposure of appendix, 10mm trocar inserted through a 10 mm incision just below umbilicus, peumoperitoneum created and operative laparoscope inserted, appendix identified and its tip suspended anteriorly to pariatal wall with the help of intracorporeally placed suture to its tip and abdominal wall or by extracorporeal sling suture or with the use of a straight needle introduced transdermally in right iliac fossa and curved internally and used as a hook to suspend the appendix, after this dissection of mesoappendix carried out with harmonic cautery and base devided after ligating it with endoloop using catgut 1-0, appendix removed through the trocar or along with the trocar , base and surrounding structures inspected for inadevertent injuries, rectus closed with 2-0 ethilon and skin closed with absorbale3-0 monocrylsuture.

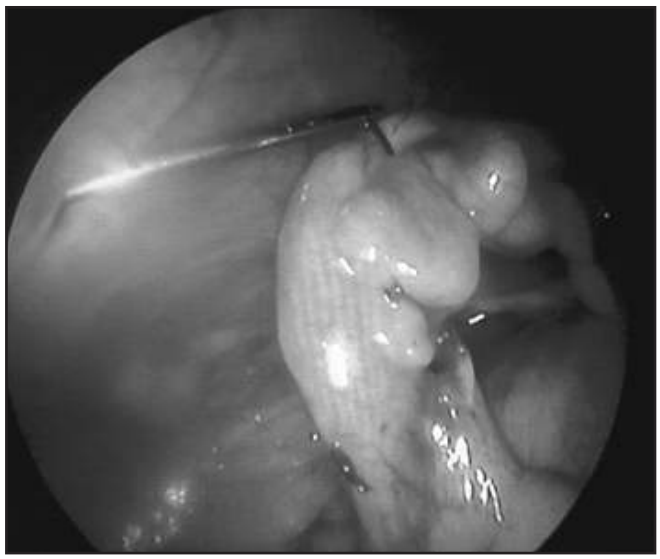


Image 3: Appendix suspended with transdermal needle

Single shot of im. Diclofenac 75 mg given to the patient, oral fluids started after 6- 12 hrs. Patient mobilized early and discharged on 2nd day followed up after 1 week, then after 1 month. At each visit, pain at operative site and the scar was assessed.

Results & Discussion

The procedure of single trocar appendectomy performed successfully in 47 patients, conversion to multiport

required in 2 patients and open surgery needed in one patient, mainly because of concealed perforation and pus collection at the base of appendix. The mean operative time was 44.63 min. which is equivalent and somewhat better to other similar studies and other minimal invasive procedures.[4,5,6] There were no intraoperative as well as postoperative complications, no mortality was noted. Post operative pain was less, assessed by visual analogue scale[7]. The mean hospital stay was 2.16 days for the series with early return to routine activities. There are no cases of wound infection or stitch granuloma, or post operative herniation noted till date. The cosmesisof scar assessed by Vancouver scar scoring system[8] which yields better perception for cosmesis. The mean VSS score was 1.8. The cost reduction is obvious because it obviates the need of costly flexible instruments and special ports; the procedure requirements are only standard laparoscopy set up with a single trocar and an operative laparoscope, which are available at our institute.

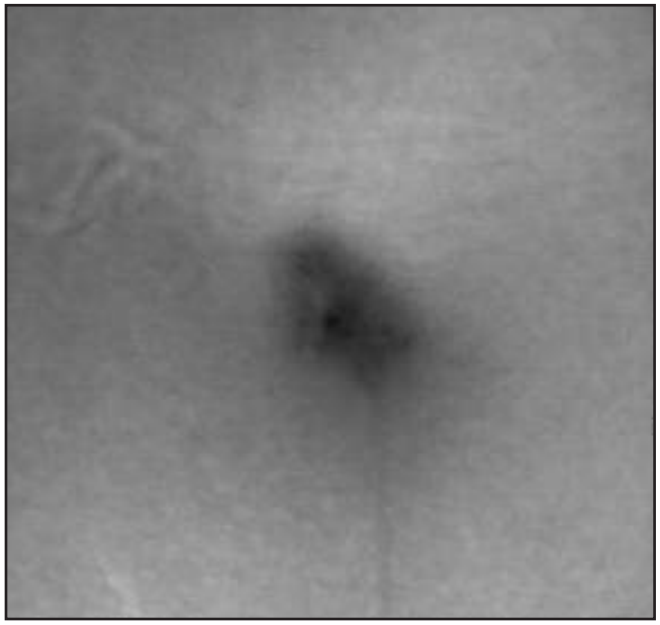


Image 3: Scar at 1 month follow up

Conclusion

Though laparoscopic appendectomy is increasingly used for treating simple and complicated appendicitis, this technique further improves the minimal invasiveness of laparoscopic surgery, only single 10mm incision is used, and appendectomy performed with the aid of single trocar and operative laparoscope.

Thus to conclude appendectomy in young patients with non perforated appendicitis can be performed with single trocar surgery using operative laparoscope with minimal complications, decreased hospital stay, decreased post operative pain, early return to routine activities, with cost benefit and excellent cosmesis.

References

1. Nesbit RR Jr. Reginald Heber Fitz, MD (1843-1913) A Bio-Bibliography. BA Thesis. Cambridge: Harvard College; 1961.
2. McBurney C. Experience with early operative interference in cases of disease of the vermiform appendix. NY Med J 1889; 50:676.
3. ManoelGalvaoNeto et al, Single port laparoscopic access surgery:Techniques in Gastrointestinal Endoscopy (2009) 11, 84-93
4. Roberts Ke.True Single-Port Appendectomy: First Experience With The "Puppeteer Technique". Surg Endosc. 2009 Aug;23(8):1825-30. Epub 2009 Jan 24
5. Esposito C: One-trocar appendectomy in pediatric surgery. SurgEndosc 12:177-178, 1998
6. Ates¸ O, Hakgu¨der G, Olguner M, Akgu¨r FM. Single-port laparoscopic appendectomy conducted intracorporeally with the aid of a transabdominal sling suture. J PediatrSurg 2007;42:1071-4
7. Huskisson EC, Measurment of pain. Lancet1974:2:1127-31
8. Nedelec B, Shankowsky A, Tredgett EE. Rating the resolving hypertrophic scar: comparison of the Vancouver Scar Scale and scar volume. J Burn Care Rehabil. 2000; 21:205-12.

CASE REPORT

Clinicalmanagement Of Rare Case Of Ovarian Choriocarcinoma

Waghulde Sanjivani, Pingle Tejaswini, Kadam Dilip, Dayama Shridhar

Department Of Obstetrics and Gynaecology BJ GMC Pune , Maharashtra

ABSTRACT

Due to the rarity of pure Ovarian Choriocarcinomas, information on the clinicopathologic features, diagnosis, and therapeutic options is limited. Herein, a case of a pure ovarian choriocarcinoma of non-gestatonal origin is presented. Following abdominal operative procedure, histopathological examination of the tumor revealed choriocarcinoma. Multiple courses of the chemotherapy with Etoposide and Cisplatin regimen were effective for this case.

Introduction

Pure ovarian Choriocarcinomas are extremely rare malignancies which are of non-gestational in origin. The gestational type may arise from an ectopic ovarian pregnancy (theoretical possibility) or present as ametastasis from a uterine or tubal Choriocarcinoma, while the non-gestational type is a rare germ cell tumor with trophoblastic differentiation. The estimated incidence of Gestational Ovarian Choriocarcinomas is 1 in 369 million pregnancies . Non-Gestational Ovarian Choriocarcinomas account $\leqslant$ 0.6% of all ovarian neoplasms[6,7]; the pure type is extremely uncommon.

Case Report

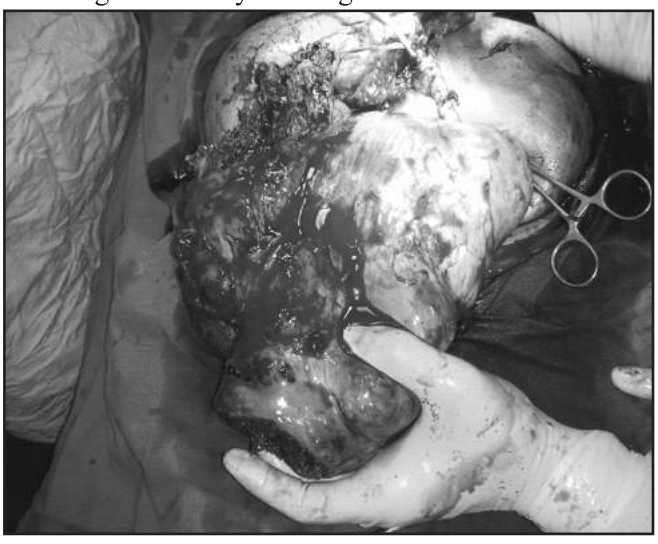
A 35 years aged,P_2L_2(2 FT LSCS),with tubectomised came to OPD of Sassoon general hospital with chief complaints of pain in lower abdomen , lump in abdomen , excessive vomiting since 2 months. H/o weight loss and difficulty in passing urine and constipation was also present.

Examination

Animmobile hard large pelvico-abdominal mass of 26 wks size was felt. P/V examination revealed pouch of Douglas obliterated due to bulky mass and cervix movements were not mutually transmissible.

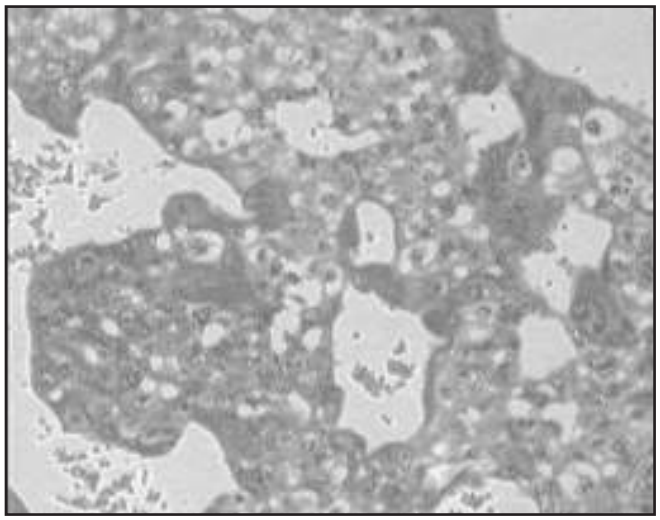
USG: Pelvico-abdominal mass of 18cm x 8cm x 10cm arising possibly from uterine fundus, ovaries not visualized separately. **CT SCAN**: Large lobulated heterogeneous mass of 22 x18 x 9 cm in pelvis and abdomen adherent to uterus with, loss of fat planes between mass and sigmoid colon and liver enlarged in size with peripheral enhancing lesion in segment vii.??metastasis??**TUMOR MARKERS**: Urine forhCG – negative, CA-125 -88.9 U/ml.

Exploratory laparotomy was done on 09/01/2013.Mass Of 20 X 15 X 10 cm Seen, invading Anterior Surface of the Uterus. Right was Ovary Not Seen Separately, Left Ovary Identified. Mass was infiltrating Dome of Urinary Bladder. Also Mesentery of Sigmoid Colon was involved. Bowel Loops Were Adherent to Mass. Sharp Dissection Done To Separate the Mass from Urinary Bladderand Complete Excision of Invaded Tissue Achieved. 5cm X 5cm Mass Was Invading Mesentery Of Sigmoid Colon. Mass Was



Address for correspondence:
Dayama Shridhar, Resident Quarters, BJ Medical College & Sassoon Hospitals, Pune 411001(MS)
mail: shridhardayama@gmail.com

Excised. 3cm X 3cm Umbilical Mass Was Excised, Umbilicectomy Done. PartialInfracolicOmentectomy Done. Liver Surface Palpated, No Obvious Lesion Palpated. Intestinal Tract Traced and Examined, No E/O Injury.



Histopathology report was **Choriocarcinoma.**

βhCG was 78,569 mIu/ml on post operative day 7. Likely explaination of urine negative for hCG and high β hCG level in serum would be 'Hook Effect'.

Patient's condition got worsened on post operative day 14. There was altered sensorium, excessive vomiting. Arterial blood gas analysis showed metabolic acidosis. Potassium levels were decreased to 2.2 mEq/dl. Serum ammonia level was raised to 192 mg/dl. Diagnosis of hepatic encephalopathy was made. It was treated with the help of physician. Patient recovered gradually over 3 days.

Chemotherapy cycle with Etoposide (100 mg/m2/day for 5 days)andcisplatin (20 mg/m2/day for 5 days)was given after tumor board reference. Patient tolerated it well.

Discussion

Pure ovarian Choriocarcinomas are rare[1], but aggressive tumors that pose diagnostic and therapeutic challenges[1,2]. The pre-operative diagnosis of pure ovarian Choriocarcinoma is very difficult, especially for patients in the reproductive age due to the non-specific clinical symptoms which can mimic other more common diseases. To distinguish a gestational ovarian Choriocarcinoma from a pure non-gestational ovarian Choriocarcinoma based on conventional histopathologic studies is not currently possible in the reproductive age group. Molecular genetic analysis is a reliable method for identifying the genetic origin of pure Ovarian Choriocarcinomas .Search for paternal DNA in tumor allows a definite distinction between Gestational and Nongestational types.[8-11] However, since such techniques are always expensive and not generally available in all medical centres, the application is limited. For this very reason, we could not perform molecular genetic analysis on the tumor from our patient. In the light of the long duration (4 years) from the antecendent pregnancy, the absence of intrauterine trophoblastic disease, and the relatively low β-hCG level, it is suggested that this patient had a pure **NON-GESTATIONAL OVARIAN CHORIOCARCINOMA.** To date, no definitive treatment modality has been established for pure ovarian Choriocarcinoma due to the low incidence. Thus, pure Ovarian Choriocarcinomaare generally treated by the same protocols used for ovarian germ-cell tumors and Gestational Trophoblastic Disease. In the current case, the treatment included cytoreductive surgery followed by post-operative chemotherapy. Prognosis of Non-Gestational Ovarian Choriocarcinoma has been found to be worse than Gestational Choriocarcinoma and requires more aggressive chemotherapy compared with Gestational Ovarian Choriocarcinoma. Considering that pure Ovarian Choriocarcinoma is aggressive with a high risk of metastasis, close follow-up with serum β-hCG and imaging examinations is essential.

Conclusion

It is important to think of the rare conditions like ovarian choriocarcinoma as a differential diagnosis in a case of lump in abdomen once common conditions are ruled out, as management and prognosis differs accordingly. In comparison, pure ovarian choriocarcinoma is associated with relatively low βhCG levels than gestational choriocarcinoma. Histopathology cannot differentiate between gestational and non gestational choriocarcinoma.

References

1. Vance RP, Geisinger KR: Pure nongestational choriocarcinoma of the ovary: report of a case. Cancer 1985, 56:2321-2325.

2. Jacobs AJ, Newland JR, Green RK: Pure choriocarcinoma of the ovary. ObstetGynecolSurv 1982, 37:603-609.
3. Mishra SK, Crasta JA. Primary choriocarcinoma of the ovary: a case report. J ClinDiagn Res. 2008;2:1207–1209.
4. Park SH, Park A, Kim JY, Kwon JH, Koh SB. A case of non-gestational choriocarcinoma arising in the ovary of a postmenopausal woman.J GynecolOncol.2009;20: 192–194.
5. Gon S, Majumdar B, Barui G, Karmakar R, Bhattacharya A. Pure primary non-gestational ovarian choriocarcinoma: a diagnostic dilemma. Indian J Pathol Microbiol. 2010;53:178–180.
6. Axe SR, Klein VR, Woodruff JD. Choriocarcinoma of the ovary.Obstet Gynecol. 1985;66:111–114.
7. Vance RP, Geisinger KR. Pure nongestational choriocarcinoma of the ovary: report of a case. Cancer. 1985;56:2321–2325.
8. Tsujioka H, Hamada H, Miyakawa T, Hachisuga T, Kawarabayashi T. A pure nongestational choriocarcinoma of the ovary diagnosed with DNA polymorphism analysis. GynecolOncol. 2003;89:540–542.
9. Zhao J, Xiang Y, Wan XR, Feng FZ, Cui QC, Yang XY. Molecular genetic analyses of choriocarcinoma.Placenta. 2009;30:816–820.
10. Koo HL, Choi J, Kim KR, Kim JH. Pure non-gestational choriocarcinoma of the ovary diagnosed by DNA polymorphism analysis.Pathol Int. 2006;56:613–616.
11. Yamamoto E, Ino K, Yamamoto T, Sumigama S, Nawa A, Nomura S, et al. A pure nongestational choriocarcinoma of the ovary diagnosed with short tandem repeat analysis: case report and review of the literature. Int J Gynecol Cancer. 2007;17:254–258.

Health Hazards of E-waste

Ekbote G R

Dept. of General Surgery, B.J. Medical College, Pune 411001

ABSTRACT

Electronic Waste (e-waste) comprises of waste generated from used electronic devices which are not fit for their original intended use. E-wastes contain different substances, many of which are toxic and potentially hazardous to environment and human health. These include electronic gadgets, old TV Sets, Washing Machines, Refrigerators, fans, toasters, computer mother boards, CPUs, Monitors, Printers, UPS, Keyboard, mouse, mobile Phones, chargers, EPBAX systems CFL bulbs, Digital Cameras, Pen Drives, small hand held devices used at homes and many digital hospital equipments. The composition of e-waste is diverse and falls under hazardous and non-hazardous categories. Broadly, it consists of ferrous and non-ferrous metals, plastics, glass, wood and plywood, printed circuit boards, concrete, ceramics, rubber and other items. There is question, whether these e-waste items are to be dumped, repaired and reused and used as spare ones, recycled to other applications or convert them into ash ? But in all these disposal process one has to care about its major as well as minor environmental effects that can be hazardous to human beings. There is a need to educate human community about e-waste disposal or awareness about e-waste management following through certain procedures. In this paper. "Health hazards of e-waste" with respect to e-waste management in India is presented.

Keywords: e-waste, gadgets, reuse, recycle.

Introduction

As we know, that due to advances in electronic technology, new electronic products loose their importance after few months. This situation is continuing for last few years and due to this, many electronic instruments, which are not in use, can be treated as electronic waste (e-waste). How to manage this e-waste is a big question. Dumping these in landside may cause serious problems for living beings due to dangerous chemicals present in these instruments. These hazardous and other wastes pose a great threat to the human health and environment. The issue of proper management of e-wastes, therefore, is critical for the protection of livelihood, health and environment. It constitutes a serious challenge to the modern societies and requires coordinated efforts to address it for achieving a sustainable development.

Reasons for E-Waste Generation

E-waste are those electronic equipments/ products that connect with power plug, batteries which have become obsolete due to advancement in technology, changes in fashion, style and status, nearing the end of their useful life. Also because of increasing purchasing power and standards of living, people purchase of new equipments on a periodic basis. This leads to increase in sale of new consumer electronics products and disposal of old one even if they still work. Cell phone companies typically allow free or very inexpensive upgrades every one year. This leads people to stop using working cell phones simply because there is something newer, possibly with more features and older cell phones along with charger and cords are converted into e-waste. Many people throw out perfectly good, working analog TVs either because they don't want to hassle with using a converter box on their old TV, or they want to view TV using the HDTV technology. Also TV companies are advertising boldly telling need to upgrade to HDTV with so many facilities. Cheap consumer-grade printers have substantially brought into market over the last few years. They are sometimes cheaper than the toner. They do not last long, and when they break, we even don't think of getting it fixed because it's so much cheaper to just buy a new one. Microsoft's release of its VISTA operating system alone caused a spike in the e-waste stream. The new operating system simply couldn't run on many older computers which lacked the memory or processing speed, leading to those who wanted to keep up with the current platform to replace their computers.

Address for correspondence:
Dr G R Ekbote, Professor of Surgery, B.J. Medical College, Pune 411001

Hazards on Health

Informal recycling markets in China, India, Pakistan, Vietnam, and the Philippines handle anywhere from 50 percent to 80 percent of this e-waste, often shredding, burning, and dismantling the products is in "backyards." Emissions from these recycling practices are damaging human health and the environment.[1] Enormous amounts of electronic products are disposed of every year, between 20 to 50 million metric tonnes, posing grave human health threats from unsafe handling of the e-waste. Most of these discarded products go to landfills or incinerators instead of recycling facilities, resulting in water and air contamination.

Hazardous materials in e-waste, like lead and mercury, can leach out of landfills into groundwater and plastics in electronics emits cancer-causing dioxins and furans. The batteries in electronic products, such as laptop batteries, also contain heavy metals which can leak into groundwater supplies once the batteries corrode.

Children aged 8—9 years living in an e-waste recycling towns had a lower forced vital capacity than those living in a control town. Significant correlations between blood chromium concentrations and forced vital capacity in children aged 11 and 13 years were also reported. Findings from most studies showed increases in spontaneous abortions, stillbirths, and premature births, and reduced birthweights and birth lengths associated with exposure to e-waste. People living in e-waste recycling towns or working in e-waste recycling had evidence of greater DNA damage than did those living in control towns.

Health Hazards from Some Toxins in Electronics

Toxic Material	Health Hazards
Beryllium	Exposure can cause lung cancer, and chronic beryllium disease (berylliosis, permanently scars lungs and ultimately cause to death).
Barium	Short term exposure causes muscle weakness, damage to heart, liver and spleen.
Mercury	Exposure through ingestion or inhalation can cause central nervous system damage and kidney damage.
Chromium (IV) Hexavalent	Exposure can cause strong allergic reaction linked to Asthmatic Bronchitis and DNA damage to cells.
Cadmium	Long-term exposure can cause kidney damage, and damage to bone structure, also a known carcinogen. Short term or acute exposure can cause weakness, fever, headache, chills, sweating and muscle pain
Lead	Exposure can cause brain damage, nervous damage, blood disorders, kidney damage and developmental damage to fetus. Children are especially vulnerable. Acute exposure can cause vomiting, diarrhea, convulsions, coma or death.
Plastics including PVC	Burning produces dioxin. It causes reproductive and developmental problems, Immune system damage and interferes with regulatory hormones.

Indian Scenario

In reality, in India, E-waste management has evolved as an economic option for scrap industry due to which e-waste management has emerged as an informal sector where processing and recycling is done. Thus, e-waste management is self governed and is economic/market driven sector in India. Since, 2001 there are serious initiations marked in India for environmentally sound E-waste management in India. As per the experts from Gesellschaft für Technische Zusammenarbeit (GTZ, German Organization), it is understood that e-waste is not hazardous during its collection, storage, and transportation or dismantling. They feel that informal collection and manual dismantling activities do not necessarily be transformed in to formalized process by introduction of new technologies. The informal sector has adopted crude methods for extraction of precious metals like acid dips, open burning, which are hazardous to human health and environment. In addition to the hazardous effect, the methods adopted are observed to be inefficient. For instance in extraction of precious metals from printed wiring boards only 20% of gold can be extracted from leaching process where if the scientific methods are adopted, about 95% of 17 different metals can be extracted. Hence due to the adaptation of unscientific methods, techniques by the informal sector which is the leading sector for e-waste management, bares a high risk of health and environmental hazard.

Current Practices

In India there are no specific regulations for management of E-wastes, with the exception of batteries. Also there is no specific data available regarding e-waste generation and its management. Only informal sectors (including scavengers) play a large role in collecting and recycling valuable parts.[4]. The existing management practices related to E-waste in India are reasonably poor and have the potential to risk both human health and the environment. There are only two authorized small E-waste dismantling facilities functioning in Chennai and Bangalore. Nevertheless, the increasing generation of E-waste asks for many more such units across the country. There is no large scale organized E-waste recycling facility in India and the entire recycling exists in unorganized sector. Involvement of urban poor, especially women and children and illegally imported E-waste

from developed countries, further exaggerate the problem of E-waste in India.

Government of India has been supporting several initiatives. Of particular importance is the assessment conducted by the Central Pollution Control Board (CPCB) on the management and handling of E-waste has lead the preparation of "Guidelines for Environmentally Sound Management of E-waste" in May, 2008 and "the e-waste(Management and Handling) Rules, 2011".Ministry of Environment and forest formed rules and regulations for e-waste management rules 2011, which came into effect from 1st May 2012. These rules should apply to every producer, consumer or bulk consumer involved in the manufacture, sale, purchase and processing of electrical and electronics equipment or components, collection centre, dismantler and recycler of e-waste.[6]

Conclusion

Efforts are needed from both the formal and informal sectors to create awareness and develop best practices and appropriate models of management of e-waste. The entire chain of policy makers, designers, producers, consumers and end-of life treatment workers should all work in together and reduce environmental as well as health problems arising due to e-waste management presently adopted.

References

1. Lucy McAllister *"The Human and Environmental Effects of E-Waste",* http://www.prb.org/Publications/Articles/2013/e-waste.aspx
2. Kristen Grant MIPH, Fiona C Goldizen BA, Prof Peter D Sly MD *"Health consequences of exposure to e-waste: a systematic reviews"*, http://image.thelancet.com/journals/langlo/article/PIIS2214-109X(13)70101-3/fulltext
3. Rochat D, Rodrigues W, Gantenbein A, *"India, Including the informal sector in clean e-waste channel"*, Swiss Institution for material science and Technology, Proceedings Article Waste Management Conference (WasteCon2008), 06.10.2008, Durban, South Africa.
4. Atsushi Terazono· Shinsuke Murakami· Naoya Abe,Bulent Inanc· Yuichi Moriguchi· Shin-ichi Sakai,Michikazu Kojima· Aya Yoshida· Jinhui Li· Jianxin Yang, Ming H.Wong· Amit Jain· In-Suk Kim Genandrialine L. Peralta Chun-Chao Lin, Thumrongrut Mungcharoen· Eric Williams *"Current status and research on E-waste issues in Asia"*, J Mater Cycles Waste Manag (2006) 8:1–12.
5. Anwesha Borthakur, Pardeep Singh *"Electronic waste in India: Problems and policies",* INTERNATIONAL JOURNAL OF ENVIRONMENTAL SCIENCES Volume 3, No 1, 2012.
6. "THE GAZETTE OF INDIA: EXTRAORDINARY [PART II-SEC.3 (ii)]", 12 May 2011.

The Research Society

B. J. Medical College And Sassoon General Hospitals, Pune - 411 001

ANNUAL REPORT

(April 2012 To March 2013)

Dear Life Members,

I. GOVERNING COUNCIL:

The office-bearers of the current Governing Council (2011-2012) were :

President	Dr. U.P. Divate
Vice-President	Dr. D. B. Kadam, Medicine
Hon. Secretary	Dr. B.R. Daswani, Pharmacology
Hon. Treasurer	Dr. P.M. Bhalerao, Anaesthesia
Ex-Officio Members	Dean, BJMC Dr. Ajay Chandanwale Superintendent, SGHs, Dr. DG Kulkarni
Ex-President	Padmashree Dr. U. D. Sutaria

Dr. RA Bhosale, Dept. of Obs & Gynae

Dr. Neela Aundhkar, Dept. of Physiology.

Dr. Sneha Sathe (Hon. Joint Secretary), Dept.of Physiology

Dr. Surekha Shinde, Dept.of Anaesthesia

Dr. Suvarna Joshi, Dept.of Microbiology

Dr. Prasad, Dept.of Medicine (Co-opted member)

Dr. S P Rao, Dept.of PSM (Co-opted member)

II. MEMBERSHIP:

Following 42 persons have been enrolled as Life Member.

Ramchandra B Limaye	Shetty Amit Mahendra
MilindVitthalBotre	Single Ashok Mohan
Dilip Shankar Wagholikar	Raybhan Raju Vaman
Dixit Bhalchandra Suryakant	Ghaiye Arun Avantilal
Shinde Sanjiv Tukaram	Namisha Shivraman
Deshpande Pradeep Kishanarao	Kandade Pravin Sonu
Sanjay AnantSangle	Narote Arjun Namdeo
Kalpana Sanjay Sangle	Nikumbh Smruti Subhash (Haval)
Khedkar Sunita Milind	Vhora Sanjay Shantilal
Savaskar Vithal Sukhdev	Rajeshwari Vhora
Naik Shilpa Nandkumar	Tambe KantaGanpatrao
Shrivallabh Ghorpade	Todkar Manoj Shankarrao
Gosavi Nandkishor Dattatray	Priya Kulkarni
Pandit Pranjal Padmakar	Ramchandra Narayanrao Bharadwaj
Shetty Dayanand Dumanna	Mangesh P Bankar
Bandgar Amol Suryakant	Shinde Amol Balwant
Naik Vijay Indal	Manisha Mete-Dale
Prashant Kokane	Mhasde Dinkar Rupaji
Kelkar Tushar Madhavrao	Chhaya Kirankumar Jadhav
Hegde Rahul Ganapati	More shrikant Narayan
Muthiyan Sushil Nemichand	Kothari Ramesh Bansilal

The Life Membership Fee was Rs. 1000/- .

III. NEW RESEARCH SCHEMES : There was 1 new research proposal by Dr KK Kulkarni (Pathology) for the project 'To assess sensitivity and specificity of ADA levels in BAL fluid with solid culture as gold standard in diagnosis of sputum smear negative pulmonary TB'. An amount of Rs 33,000/- was sanctioned to this project research during 2012-13.

IV. MEDICAL JOURNAL OF WESTERN INDIA:

Volume 40was published and released on22nd June12 on the occasion of Inauguration of the Annual Conferenc of Research Society of B.J. Medical College & Sassoon General Hospitals Pune.

This volume contained 2 Editorials on "India, Clinical Trial Hub" And "Salt Intake Among Indians: Role In Non-Communicabe Diseases". It also included 6 original Research articles, 3review articles, 1Update on "Human Milk Bank", 1 overview on "Radiological, pathological and biochemical correlation of progression of knee osteoarthritis", 5 Short communications and 8Ccase Reports.

Dr. S.P. Rao shouldered the responsibility of Editor–in–Chief.

V. ANNUAL CONFERENCE :

A. The 39th Annual Conference held on 20th to 22nd February 2013, was jointly organized by the Department of Orthopaedics and Department of Biochemistry, under leadership of Dr. Bartakke and DrIyer (as Organizing Secretaries). Dr.ArunJamkar, Vice Chancellor, Maharashtra University of Heath sciences, Nashik, inaugurated the conference in presence of Dr.Subhash Jain.

B. Total 932 delegates attended the conference. A total of 54 research oral papers and 94 posters and 36 interesting cases were presented.

C. Dr. B.B. Dixit Oration was on "Recent advances in pathophysiology of acute and chronic pain" by Dr.Subhash Jain.

D. There were CMEs – on

i) "Late Dr. Prasanna Nyayadhish Memorial Pediatric cardiology update" by Dr. Nitynand Thakur, Dr. Rituparna Shinde, Dr. Prof. Anil Tendolkar

ii) Nutritional Disorders – by

Topic: Obesity in Children: A Timebomb

Speaker: Dr Vaman Khadilkar

Topic - Nutrition in Child: Health & Malnutrition

Speaker - Dr. Vaishali Madkaikar, KEM

Topic - Nutrition in Adult: Health & Malnutrition

Speaker - Dr Geeta Dharmatti

E. There were Symposia on "Congenital Heart Disease in clinical practice", by Dr. Siddarth Gadge, Dr. Snehal Kulkarni, Maj Gen Manoj Luthra.

F. Guest Presentations :

1) Topic - Research by Reverse Pharmacology: New Approach to Indian Medicine

Speaker - Dr Suresh Patankar

2) Topic - Clinical Relevance of DNA Sequencing

Speaker - Dr Parag Tamhankar

3) Topic - Spine Surgery

Speaker - Dr AB Goregaonkar

4) Topic - Biologicals in Rheumatology Practice

Speaker - Dr. Yojana Gokhale

5) Topic - Sleep Disorders

Speaker - Dr Sobti

The conference was a grand success in all respects under the able guidance and active participation of our President– Dr. (Mrs.) Divate, Dean – Dr. AS Chandanweale, and other Members of Organizing Committee.

VII. PRIZES

Apart from the annual awards, the recipients of the **Regular Awards** of the Society were as follows:

Prizes	Recipient
1) Suchintan Trophy (Rolling) **(Best paper of the Conference)**	Dr. Sheetal Joshi, Dept.Anatomy
2) Sphurti Trophy **(Best paper in Anesthesia)**	Dr. Poonam Bharambe, Dept. Anaesthesia
3) Harshawardhan Prize **(Best paper in undergraduate + Postgraduate category)** (Amount - Part of interest Accrued on principal amount of Rs.10,000/-)	Dr. Sangeet& Team, Dept Anatomy

4) Dr. A.R. Bhadkamkar Award **(Best paper in Anatomy)** (Amount = interest accrued)	Dr. Sheetal Joshi, Dept. Anatomy
5) Dr. Mrs. V.A. Bhadkamkar Award **(Best paper in Pharmacology)** (Amount = interest accrued)	Dr. S.U.Patil, Dept. of Pharmacology
6) Dr. Jejurikar Award **(Best paper in Surgery)** (Amount = interest accrued on on principal amount of Rs.5000/-)	Dr. Prasad Kasbekar, Dept. of Surgery
7) Dr. S.J. Kinikar Award (**Best paper in Medicine by a postgraduate student)** (Amount = 80% interest on a deposit of Rs.25, 000/-)	Dr. Rahul Kulkarni, Dept. of Medicine
8) Dr. Ajit Gokhale Prize (Amount = 80% interest on a deposit of Rs. 10,000/-)	Dr.Madhura K. Dept. of Microbiology
9) Dr. D.J. Patil Award (Best Oral paper in interesting case session) - Rs. 1000/-	Dr. Poonam Lokhande Dept. of Dermatology
10) Dr. M.B. Gharpure Memorial Trust (Best Oral paper in Dermatology) Rs. 1000/-	Dr. Arti Salunke, Dept. of Dermatology
11) Roentgen Trophy (Best Oral paper in Radiology) Rs. 2000/-	Dr.Prerna Mahadiya Dept. of Radiology
12) Dr EP Patil Award (Best Oral paper in Orthopaedics) Rs. 2500/-	Dr. Sandeep Kumar, Sancheti Hospital

X. AUDITORS Deekey & Co., Pune was continued as auditor for this period.

Hon. Secretary
Research Society
B.J.M.C. & S.G.Hs, Pune 411 001.

ACKNOWLEDGEMENTS

The Hon. Secretary is thankful to the members of Governing Council, Past Office Bearers, Editor - in - Chief and the members of the Organizing Committee of the Annual Conference for their valuable help in fulfilling the objects of our trust.