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Happy New Year – 2022 to all esteem medical fraternity from India and abroad. Till date all of us are fighting to prevent covid – 19 viruses for our pregnant mothers and neonate.

As editor of JIAOG, I am glad to inform you that volume 3 issue 2 of JIAOG is going to release on 28th January 2022.

Today I am very happy to share with you that after getting RNI (WBENG/2019/78475 dated 20 February 2020). We have got ISSN (2583 – 0589, Date – 01.12.2021) permission.

Hopefully we are trying to get index and pub med journal in future, for that we must focused on evidence based scientific, innovative research papers covering review and original articles, case reports, video, book review etc.

Since inception of our journal, we are mainly focusing on early diagnosis and prevention of maternal mortality & morbidity as well as implementation of family planning program.

In this issue we are highlighting suggestions which were put forward by different experts mainly from Assam, Manipur, Meghalaya, West Bengal, Orissa, New Delhi, Punjab & Andaman & Nicobor Island – how to prevent Maternal Death and its morbidity. We are also getting guest editors written up view to prevent MMR.

I am very much grateful to all contributors and our total team whose whole hearted help and suggestions to make this journal one of the best medical journals, as regards to Maternal Morbidity & Mortality, in the world in future.

Dilip Kumar Dutta
Chief Editor
Journal of Indian Academy of Obstetrics and Gynaecology

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Special Guest Editorial

STRATEGIES FOR REDUCTION OF MMR

Sumita Ghosh
Additional Commissioner, Maternal Health, MoHFW, Govt. of India

INTRODUCTION

Maternal Mortality is a sensitive indicator, not only for maternal health care but also for the level of advancement achieved in overall health care system, for the preparedness of the system to deal with emergency situations. This is also an important parameter for socio – economic development of women, gender equality and identifies the Gender gaps in the country.

The latest available Sample Registration System (SRS) Data, 2018 on Maternal Mortality Ratio (MMR) indicate that the national average is 113 maternal deaths which are occurring annually for every 100,000 live births. India has reduced the maternal mortality in an accelerated pace, but the reduction has not been uniform throughout the country. There are variations in between the States- Assam, UP, Bihar, Madhya Pradesh, Chhattisgarh, Rajasthan, Odisha, Punjab still have large burden of mortality during pregnancy. Even within these States, there exist pockets of concentration. The SDG (Sustainable Developmental Goals) target is to reduce MMR to 70 per 100,000 live births at National and Sub National level.

Reduction of maternal mortality needs holistic strategies encompassing a life cycle approach. Early marriage and teenage pregnancy carry high risks of pregnancy complications. Family planning methods for delaying the first pregnancy till 21 years of age, increasing spacing between the pregnancies and preventing multiparity have contributed a lot for mortality reduction. Another area of concern is nutrition in adolescent girls and women of reproductive age group- Anamia being of particular importance. Improving nutritional status and reduction of anaemia in these two age groups are important strategies for combating mortality.

ANTENATAL CARE STRATEGIES

Provision of Comprehensive Antenatal Care to all Pregnant Women and accelerated efforts for identification and management of High-risk Pregnancies are essential. Every Pregnant Woman must be ensured at least four ANC checkups through complete and regular antenatal services with follow up. Proper birth planning of all pregnant women for timely referral to identified health facility based on the

high-risk conditions and emergencies must be in place well in advance.

Institutional deliveries are promoted through various schemes like JSY (Janani Suraksha Yojana), PMMVY (Pradhan Mantri Matru Vandana Yojana). With an aim of zero out of the pocket expenditure for the pregnant women, all deliveries including Caesarian sections are being supported through Janani Shishu Suraksha Karyakaram (JSSK) (for Drugs and Consumables, Diagnostics, Diet, Blood and Transport).

Deaths due to unsafe abortions can be averted easily by increasing access to Comprehensive Abortion Care services and ensuring safe abortions at all high delivery load points.

Moderate and Severe anaemia and their attendant complications are often underlying causes of maternal death. Administration of Iron and Folic Acid supplementation orally as well as Iron sucrose injections for the moderate and severe anaemic cases for correction of anaemia levels among pregnant women, Nutrition Supplementation for the undernourished -can prevent such cases.

INTRA-NATAL CARE STRATEGIES

Institutional delivery by skilled birth attendants is the cornerstone for improved pregnancy outcomes. The day of birth accounts for 46% of maternal mortality. Government of India is implementing LaQshya Programme where in quality certification are issued to the facilities on achieving the set standards for delivering quality care for pregnant women and newborn in intra partum and immediate post-partum periods. Labor room infrastructure strengthening as well as improving the quality of care, service delivery and close monitoring of safe practices during childbirth are of paramount importance for reduction of childbirth related mortalities. The Laqshya programme aims at ensuring quality and respectful maternity and newborn care. Triaging of all pregnant women at the time of admission for the mode of delivery, after conducting USG for any complications, will facilitate early identification of complications and ensure focused care. Provision of facilities like Caesarean section to high risk deliveries when indicated, drugs, diagnostic, Blood etc are of critical importance Transport services including drop back are essential for timely referral to appropriate level of care through JSSK are free in public health system.

It is important to have skilled workforce for preventing mishaps. Capacity building of the health care providers at various levels are done through trainings like Skill Birth Attendant training, Midwifery training, Dakshata training on evidence-based practices to ensure early identification of complication and for proper pre referral management.

All attempts may be made for decreasing the unwarranted caesarian section rates by implementing C-section audits and strengthening of referral mechanism by strictly implementing the referral protocols. Ensuring availability of specialists-Obstetricians and Anaesthetists round the clock in high delivery points along with availability of all resources are the greatest of challenges but undoubtedly, they are absolutely essential.

POST-NATAL CARE STRATEGIES

Each mother must receive counselling on danger signs and family planning methods as well as diet plans before discharge from the facility. The most serious and life threatening post-natal complications like Post-Partum Haemorrhage, Hypertension, Septic complications, anaemia etc need be actively monitored by post- partum visits of health workers.

Each Maternal death and each Near miss case of critical illness tells us the story of many things gone wrong leading to the unfortunate event. Effective implementation of the Maternal Death Surveillance and Reporting (MDSR) system must be stressed upon by strengthening the reporting mechanisms. Each death must be reported and reviewed at facility and community level and corrective actions are to be taken at all the levels starting from the State level to community level. Most of the maternal deaths are preventable. The reviews, if done seriously, point out the flaws in clinical care, delays in seeking and receiving care and in the health care system.

Each maternal death is a tragic event and associated with many untold miseries for the

family and the child apart from the untimely loss of precious life of the woman full of hope and expectation for arrival of a new life. Women continue to die during pregnancy because the society and the health system failed to accord adequate importance for preventing that death. It is time that we focus all our efforts to prevent each maternal death.

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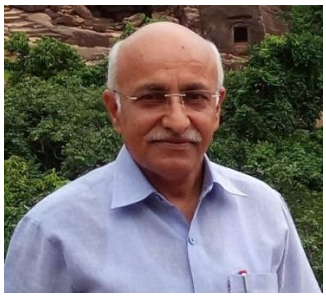
Guest Editorial

STRATEGIES TO REDUCE MATERNAL MORTALITY IN INDIA

Ramji Singh
Executive Director, AIIMS Kalyani, West Bengal



It is indeed a very important topic to which the current issue of JIAOG is dedicated. Maternal mortality in India is the death of a woman during pregnancy or after pregnancy within 6 weeks postpartum, including post-abortion or post-birth periods. Maternal health is an indicator of the development of any nation in terms of growing equity and reducing poverty. Different countries and cultures have different rates and causes for maternal death. Within India, there is a marked variation in healthcare access between regions and in socioeconomic factors; accordingly, there is also variation in maternal death rates for various states, regions, and demographics of women.

Pregnancy involves a vulnerability that put women at high risk, and India is one of many countries who record a high number of pregnancy-related deaths of women each year.

Women die as a result of complications during and following pregnancy and childbirth or abortion. Most of these complications that develop during pregnancy are easily preventable or treatable and thus avoidable. Some other complications may exist before pregnancy but are worsened during pregnancy, especially if not managed as part of the pregnant woman's care.

Till recently, India contributed one-fifth of the global burden of absolute maternal deaths.

Maternal mortality rates (MMR) are very high in Asia and Africa compared with Northern Europe's 4/100,000 live births. An Indian hospital study found the MMR to be 4.21/1000 live births. 50-98% of maternal deaths are caused by direct obstetric causes (haemorrhage, infection, and hypertensive disorders, ruptured uterus, hepatitis, and anaemia). 50% of maternal deaths due to sepsis are related to illegal induced abortion. MMR in India has not declined significantly in the past 15 years.

The Maternal and reproductive health caught the global eye in 1980s, when the Safe Motherhood Initiative, was launched at Nairobi in 1987. Since then several National and International initiatives have been adopted to reduce the unacceptable maternal deaths, especially in low resource countries.

Maternal Mortality Ratio (MMR) is an indicator of maternal and infant health. In 1990, the global MMR was 400, while in India it was 600 contributing to 27% of the total maternal deaths. In 2010 when the global MMR was 210, India had reduced its MMR to 178 in 2011.Now India

is contributing to 16% of total maternal deaths.

The National Rural Health Mission (NRHM) was launched by the Prime Minister on 12th April 2005, to provide accessible, affordable and quality health care to the rural population, especially the vulnerable groups. JSY (Janani Surakhshya Yojna) program was one the components of this, aiming at a 100% institutional delivery rate, especially in the vulnerable sections of society, as a weapon to bring down the high MMR. In this, the Accredited Social Health Activists (ASHA) workers are acting as an effective link between the government and poor, pregnant women. The total number of JSY beneficiaries has risen from 7.39 lakhs in 2005-06 to more than 1.05 crore in 2016-17. The success of the JSY scheme established building blocks for the JSSK (Janani Sishu Surakhsha Karyakram) scheme which was launched in 2011 with free entitlements to the pregnant women, sick new-borns and infants for free delivery including caesarean section and treatment in public health institutions.

To catch every pregnant woman, neonate as well as infant for quality antenatal, intranatal, postnatal, family planning and immunization services; a web enabled Mother and Child Track System (MCTS) is being implemented all over the country.

Finally, a maternal death review (MDR) policy has been institutionalized across the country, both at the facility and community levels to identify the medical causes, socioeconomic cultural factors and gaps in the system which contribute to maternal deaths. The highest rates of decline are evident from the years 2004-2006, the period just after the launch of NRHM and JSY program.

In fact, the need of the hour is more resource investment, political commitment and focused research to reduce the annual half a million unacceptable maternal deaths.

Government of India adopted the Reproductive, Maternal, New-born, Child and Adolescent Health (RMNCH+A) framework in 2013. It essentially aims to address the major causes of mortality and morbidity among women and children.

Ministry of Health & Family Welfare, Government of India has launched a new initiative namely- SUMAN- Surakshit Matritva Aashwasan" with an aim to provide assured, dignified, respectful and Quality healthcare at no cost and zero tolerance for denial of services for every woman and new-born visiting the public health facility in order to end all preventable maternal and new-born deaths and morbidities and provide, a positive birthing experience. The expected outcome of this new initiative is "Zero Preventable Maternal and New-born Deaths and high quality of maternity care delivered with dignity and respect"

According to the latest figure released by Registrar General of India - Sample Registration System (RGI-SRS) Maternal Mortality Ratio (MMR) for the period 2014-16 is 130 maternal deaths per 100,000 live births. With this, India has achieved the Millennium Development Goal (MDG) 5 i.e. India has achieved a reduction in MMR by three quarters between 1990 to 2015. The last recorded MMR in 2016-2018 was 113. Some states which have achieved an MMR of 100 per 1,00,000 live-births in 2011-13 are Kerala, Tamil Nadu, Maharashtra and Andhra Pradesh.The States of Gujarat, Haryana, Karnataka and West Bengal have also reached the MDG-5 target.

To reduce it further, the Govt. of India has initiated a number of programmes like Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA), LaQshya, Training programmes to augment skilled human resource both in medical and paramedical cadres.

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Editorial

SPECIAL ISSUE FROM CHIEF EDITOR ON PREVENTION OF MATERNAL DEATH

Dilip Kumar Dutta

Senior consultant, Gice Hospital, Kalyani, West Bengal

Mr. SB lost his wife due to eclampsia at the age of 19 years leaving behind one child. Mr. SA 30 years, lost his wife who had h/o home delivery died spontaneously without any professional help. Mr. SR, 27 years, lost his wife at the age of 18 years due to sepsis caused by illegal abortion. Mrs. AR, 20 years, delivered a baby at road- side on way to hospital died due to retained placenta.

All these preventable unwanted catastrophes and mourning of their families echo in my heart for the last 30 years. "Why Mother Die"? Whether it is due to delay to seeking treatment or delay to reach the hospital or delay on the part of the doctor to start treatment or lack of transportation due to bad road condition.

During my tenure (5yrs) as chairman of IMA standing committee initiative of safe motherhood

{2021 and chairman of safe mother hood committee of fogsi [2000 - 2005] and as a vice-president, FOGS [1998] I, I have visited most of the parts of rural area of India. While visiting the rural area, I was so much depressed to see the pathetic situation of some of the pregnant women because of lack of commitment by some of the obstetricians, nursing staff, and health providers or due to lack of the eco-socio-political commitment.

Women are dying their long journey of 280 days during pregnancy period without antenatal checkup, investigation and treatment. Every minute of a women dies as a result of pregnancy or child birth somewhere in the world may be due to – a) Teenage pregnancy, physically not fit to deliver the baby leading to obstructed labor, sepsis, eclampsia and anaemia etc. b) Due to want of blood or drug, c) Elderly women from low socio-economic resources going for illegal abortion.

Such tragic picture still existing in many states of India excluding Nagaland, skim, Kerala, Mizoram [death rate is as per report by SRS, RGI 2016 -18.] low etc. Maternal death review is not done in many states till date. No CME on MMR in many places. Government (state and central) in good faith started National Rural Health Mission (NRHM) by spending a lot of fund but no positive result to prevent MMR so far. [DR DILIP KUMAR DUTTA, INSIGHT MATERNAL MORTALITY – AN INDIAN FACE BOOK, FOGSI PUBLICATION, PULISHED BY JAYPEE, PAGE37 TO171, 2012]

Idea to publish this issue is to high light the different causes of maternal death in different states and strategies to prevent such death and valuable suggestions given by experts from Assam, Manipur, Meghalaya, Bengal, Orissa, Delhi, Punjab and Andaman and nicober too.

A) SILCHAR MEDICAL COLLEGE & HOSPITAL (ASSAM) REPORTED BY
PROF ASHISH KUMAR BHATTACHARYA
Prof and hod, obstt. And gynae deptt. SMC

As silchar medical college and hospital is the only tertiary center serving whole Barak valley, North cachar hill district, part of Tripura, southern part of Meghalaya, part of Manipur and entire Mizoram, so all the critically ill patients are referred here. Unfortunately, most of the cases arrive very late to several reasons including distance and road condition. Reduction of maternal mortality not only depends on the service provided by the O and G

department but also depends on other department like – pathology, radiology, pediatrics, neurology, hematology, medicine and last but not the least anesthesiology. [Insight Maternal Mortality-An Indian Facebook, 2012 page 38 -42, publish by Jaypee brothers] Facility of ICU with multidisciplinary approach need to be present in the department of O and G exclusively.

Maternal mortality also reflects several socioeconomic and other aspects which need to be addressed by appropriate experts in order to reduce its incidence. Improvement of only medical care facility may not be able achieve the targeted goal at least in this part of the country.

Measurement taken so far:

a) Number of doctors on emergency duty have been increased with the existing staff to the maximum.
b) Patients and attendance are motivated for voluntary blood donation, contraception and for sterilization operation in appropriate cases.
c) Patients are motivated for regular antenatal check – up.
d) Two ICU beds commissioned near labor room for care of critical cases.

Scope for improvement:

a) Creating awareness for regular antenatal checkup remain to be addressed at the periphery.
b) While institutional delivery is promoted, more doctors at junior level (Medical Officers), nurses and paramedics are needed to tackle increased burden of the department of offer optimum patient care.
c) Construction of full-fledged ICU with staff within the O and G department.

Measured Suggested:

a) Good antenatal care at the periphery.
b) Timely detection and referral of high-risk patients.
c) Raising the nutritional status (correct anaemia in particular) of childbearing mother.
d) Quick transportation of critical cases with medication prior to transfer (eclampsia, hemorrhage)

Low risk /routine cases to be tackled at PHC/FRU or Civil hospital to reduce the workload of tertiary care center.

Suggestions to improve overall scenario:

a) Creation of awareness among population regarding maternal health problems.
b) Improvement of PHC system.
c) More functioning FRUs.
d) Better treatment facility with improvement of road facility.

Safe motherhood is a vital, cost-effective economic and socio investment …….. Even one woman dying is too many women dying.

B) DIBRUGARH MEDICAL COLLEGE & HOSPITAL (ASSAM) REPORTED BY: -
DR PRANAY PHUKAN,
Professor,
DR SWATI JAIN
Asst. prof

Improving women's health requires a strong and sustained government commitment, a favorable policy environment, and well-targeted resources. The government's strategy should include balancing the role of the public and private sectors to maximize resources and to extended care to women whom government programs do not reach. [Insight Maternal Mortality-An Indian Facebook, 2012 page 43 - 48, Jaypee brothers]

The unacceptably high maternal mortality rate in India can be reduced by making concerted efforts along the following lines:

a) Allocation of sufficient funds to all the health institutions including primary health centers.
b) Construction of better roads and transport facilities especially in the rural areas.
c) Periodic training programs for local dais and female health workers.
d) Early registration of antenatal cases.
e) Health education of couples to make them understand the importance of antenatal

checkups, hospital deliveries and small family norms.

f) Wide spread availability of iron-folic acid tablets and fortified food to remote areas.

g) Prevention and early treatment of infection, antepartum and postpartum hemorrhage.

h) Treatment of concomitant illnesses like diabetes, tuberculosis and malaria.

i) Emphasizing the importance of observing proper aseptic measures while conducting deliveries.

j) Providing facilities for hospital deliveries for high-risk cases like severe anemia, diabetes and heart disease.

k) Accountability in case of the unfortunate event of any maternal death. Taking appropriate remedial measures for preventing lapses noted in the management of these cases will be of immense value in reducing the maternal mortality.

Maternal mortality is a global problem facing all those involved in women's care. Strong health system is needed to analyze the cause for these deaths. Women living in rural areas or those belonging to low socioeconomic class have the highest risk of dying and carry most of the burden. We need to target specific interventions for specific populations and engage health care providers as well as policy makers f we are to meet the challenge set maternal mortality by 75% by the year 2015.

"Safe motherhood is a vital, cost-effective, economic and social investment……. Even one woman dying is too many women dying".

C) GUWAHATI MEDICAL COLLEGE: A TERTIARY CARE HOSPITAL (ASSAM) REPORTED BY: -
SASWATI SANYAL CHOUDHURY
Prof Gauhati medical college

Gauhati

Maternal deaths due hypertensive disorders are found to be highest in Guwahati Medical College and consist of 26% of all deaths. Next cause is sepsis and it consists of 25% and which is a cent percent preventable cause. Maternal death due to hemorrhage is less and consists of 19% as transfusion facility is improved due to the presence state of art transfusion center. Anemic heart failure as a direct cause of death was found to be 12.85% and which is also a cent percent preventable cause by the existing facilities and simple measures of iron supplementation and deworming and malaria prevention, considering the area to be endemic for malaria. [Insight Maternal Mortality-An Indian Facebook, 2012 Page 49-52, Jaypee Brothers]

Rupture uterus and obstructed labor is another preventable death consisting of 7.84%. Petrographic management of labor in all cases with institutional delivery can prevent these deaths. So, it has been seen that almost 72% deaths are preventable if regular antenatal check-up to pick up all hypertensive cases as early as possible and iron supplementation with cent percent institutional delivery for sepsis prevention and provision for safe abortion service. To reduce the highest incidence of hypertension regular antenatal check-ups with blood pressure measurements are very important and achievable by simply training ANMS to check blood pressure and referring her in case of hypertension. Assuring iron tablets intake by pregnant mother is another area where ASHA and ANM can play a vital role.

Government of Assam has already taken measures to save lives of these poor mothers and one project to give free IV iron sucrose injection in mothers with severe anaemia is already been started recently in September 2011. With some more social changes of more female literacy, improvement of road conditions with better connectivity, full ANC and cent percent institutional delivery can definitely bring down MMR to MDG 5 goal very soon.

D) MATERNAL MORTALITY IN MEGHALAYA
Prof A SANTA SINGH director,
Associate prof S PANDA

The causes of maternal mortality are multiple, interrelated, complex and almost always preventable. "Delayed referral, poor transport facilities, underutilization of health facilities, and poor socioeconomic status are all

responsible for the high rate of maternal deaths.

The reasons for death of a woman in pregnancy and childbirth are many layered. Behind the medical causes are logistic causes, failure in the healthcare system, etc. And behind these are the social, cultural and political factors which together determine the status of women, their health, fertility, and health seeking behaviour.

In India, the use of maternal health care services is directly or indirectly associated with women's socioeconomic status. A17 In terms of delivery assistance, antenatal check-up and place of delivery, there appear to be a big gap according to the standards of living. Women from poorer section of the population are less likely to avail maternal health care services than rich women. Poor families do not find themselves in a position to be able to bear the cost of delivery care service." Health care is a public right, and it is the responsibility of the government to provide this care to all people equally. There should be a proper health policy by the government to decrease maternal mortality and it should be declared as a priority public health issue. Health budget should be increased and available resources should be mobilized to its fullest extent. Some useful steps include developing educational programs on health maintenance and prenatal care within the community, disseminating information through the news media and the internet, educating all women of reproductive age on the benefits of family planning, and promoting research in areas of woman health, cultural competency, and maternal mortality.

We can take the example of Sri Lanka where in 1948; its maternal mortality ratio at 630 was comparable to that of India, The MMR in Sri Lanka has shown a marked decline and as per estimates for the year 2000 is pegged at 57.0 Other indicators of maternal health are equally impressive, 96% of deliveries are attended by trained personnel and 92% of all live births take place in government hospitals. These gains have been achieved through improving both geographic and economic access to institutional health services, availability of emergency obstetric care and no health strategies like female education and woman empowerment."

The first referral hospital should be situated in areas where the MMR is high so as to avoid delay in transporting patients in obstetric emergencies. Poor road infrastructure and lack of telecommunication in the rural areas are major areas of concern. It is a very good idea to establish either maternity homes or maternity villages, close to the district hospital so that high risk cases from the remote areas can come and stay for 10-15 days prior to the onset of labour. Essential and emergency obstetric care should be available in primary health centre (PHC) level throughout the day. There should be a network of organized blood bank services. Basic amenities like ambulance services, blood pressure apparatus, weighing machine, haemoglobin meter, test tubes and acetic acid for routine urine examination for protein must be avail- able at PHC level. Good co-ordination between maternal and child health field staff and doctors can help a great extent in reducing maternal deaths. Since complications are not predictable, all women need care from skilled health professionals, especially at birth, when rapid treatment can make the difference between life and death. For instance, severe bleeding after birth can kill even a healthy woman within two hours if she is unattended. Data shows that less than two thirds (62%) of women in developing countries receive assistance from a skilled health worker when giving birth. [Insight Maternal Mortality-An Indian Facebook, 2012 page 53 -60, 168-170, jaypee brothers]

Training of the nursing staff is not up to the mark in our country. In our teaching program of nursing staff, they only have six months of rotational midwifery posting where they do not have sufficient exposure. In contrast, in Sri Lanka there is specific two-year course for midwifery where their MMR is less than 100. Medical officer should be trained to tackle obstetric emergency so that they can help at PHC level. Institutional delivery should always be encouraged and the schemes like "Janani Surakshya Yojana" should always be welcome. Nongovernmental Organizations (NGOS) should also be responsible for public awareness about women health, family planning and safe

motherhood. We should acknowledge the role of trained birth attendants and accredited social health activists (ASHAS) and support their training and integration with health care system. We should coordinate with women's organizations to promote women's health, social and economic development.

Analysing maternal mortality in Meghalaya and various steps taken by the government. Most of the mothers died because of indirect causes in 2009, mainly anaemia and malaria. These two indirect causes of maternal death are preventable. Anaemia can be due to poverty and illiteracy and poor knowledge about health. In order to prevent deaths due to malaria weekly chloroquine prophylaxis can be incorporated in iron and folic acid prophylaxis during ante-natal period. Lack of proper infrastructure and adequate man power are obstacles in public health. There are various steps taken by Meghalaya government to reduce maternal mortality and to improve general obstetric care, Steps have been taken to ensure access to skilled birth attendants and increase safe delivery to 45% by 2010. Encouragement for institutional delivery and by trained birth attendants and ASHA at village level is also done. Training co-coordinators are already appointed to train birth attendants, staff nurse and auxiliary nurse midwives (ANMS). Steps are taken to ensure supply of essential drugs and other commodities needed for skilled birth attendants in subcenters, PHCS as well as at CHCS. Steps are taken to strengthen subcenters with second ANM and provision of emergency obstetric care (EmOC) as a fall-back mechanism. Initiation has been taken for redeployment of medical officers, nurses and additional ANMS and other preclinical staff like laboratory technicians and pharmacists, etc. Strategy has been planned out to ensure round the clock services in the PACS and emergency obstetric care in the first referral units (FRUS). Many CHCS are commissioned as FRUS for comprehensive emergency obstetric care. Government is hiring skilled specialist doctors in specialty like Gynaecology, Paediatrics, and Anaesthesia. Steps are already taken to improve the infrastructure starting from PHC, CHC and civil hospitals with blood storage facility in CHCS. Reproductive and child health (RCH) consultants are appointed for Commissioning of FRUS along with the Director (Maternal and Child Health and Family Welfare), on behalf of government of Meghalaya. Government is coordinating with various NGOS to promote health education, sanitation and to prevent malaria. Government is also running 108 ambulance services for safe referral of emergency patients. North Eastern Indira Gandhi Regional Institute of Health and Medical Sciences (NEIGRIHMS) is a tertiary health care centre situated in Shillong and established by the Ministry of Health and Family Welfare, Government of India. It is almost fully functional at present and will soon be able to reduce maternal mortality in Meghalaya to some extent.

Maternal mortality is not only a health-related medical issue but also a socioeconomic issue. It remains a major challenge to health systems worldwide. Reliable information about the rates and trends in maternal mortality is essential for resource mobilization, and for planning and assessment of progress towards millennium development goal (MDG), the target for which is a 75% reduction in the maternal mortality ratio (MMR) from 1990 to 2015. Therefore, all the health workers, media person, NGOS and the government should work together in a well-coordinated way to make the millennium development goal a success.

E) MATERNAL MORTALITY AND ITS CAUSES IN RIMS: A TERTIARY CENTER IN MANIPUR REPORTED BY: -

KHUMANTHEM PRATIMA DEVI,
NG NABAKISHORE SINGH,
CHANAM MANGLEM SINGH

RIMS IMPHAL MONIPUR.

Globally maternal deaths are a manifestation of an enormous health inequality of our time.

Individual and family level: Every girl child should be given special care from childhood and proper education to be given. Every woman should plan for pregnancy after reaching a certain age and in good physical as well as in

mental health. Every pregnancy must be given good diet, nutrition, and proper rest and health facilities. Male involvement is mandatory. [Insight Maternal Mortality-An Indian Facebook, 2012 page 61-67 Jaypee brothers]

Health service level: Easy access should be there for basic antenatal, intranasal and postnatal care to all women. There must be 100% delivery by trained birth attendant. Strong, quick and functioning referral system is a must. Emergency obstetric care is to be provided at the door step of a pregnant woman or prefer- ably at the first referral unit (FRU). Safe abortion services are to be provided to prevent unwanted pregnancies.

Community level: Regular health education program involving all people must be arranged. There should be proper communication, roads and transport facilities. We must change social and cultural bad norms.

Policy maker and Government: Maternal mortality reduction should be the top priority among all problems and every country should reform laws in relation to women's health.
What is tragic is that most of these deaths are preventable. Maternal deaths are still high in comparison with developed countries. Sustained reductions in maternal mortality will only be possible if modern high-quality obstetric care is made available to all women through a system of professional midwifery and referral hospital care in the context of political commitment arid accountability of health providers.
A recent systemic review of the causes of death stressed the need for increased emphasis on prevention and treatment of obstetric haemorrhage and noted that most postpartum deaths should be avoidable by appropriate management. "Much needs to be done for maternal health care in rural areas, as most of the deaths reported are referral from peripheral centres. Concentrated efforts are required to obtain the missing data by improvising better and accurate data collection. Heath education of masses along with good quality health care and transport facilities can prevent many deaths.

F) MKCG MEDICAL COLLEGE, BERHAMPUR, ORISSA REPORTED BY: Prof RITANJALI BEHERA

SUGGESTION FOR DECEASING MMR AT OUR AREA:

As our most of death are due to haemorrhage and eclampsia

a) Universal antenatal care is the first step to diagnose and screen high risk cases for PIH and PPH.
b) Every FRU should be well-equipped and posted with an Obstetrics and Gynaecology specialist who should be trained with anticonvulsant therapy and its toxicity.
c) Care should be taken for Hb% concentration of patient either by oral/ parenteral iron therapy, so she can withstand PPH.
d) Healthcare providers should properly be trained for prophylaxis and treatment of PPH by oxytocics like use of syntocinon and misoprostol and more important is they should well experience with PPH drill.
e) Every PHC/FRU should be given all management protocol and to work accordingly.
f) Early diagnosis and timely referral can save the other.
g) Proper instrumental delivery for right patient should be chosen to avoid traumatic PPH.
h) TBA and PHC doctors should trained time to time interval for updating the knowledge.
i) Fixing an accountability of Medical Officer In-Charge.
j) Good transport facility can save the PPH patient as they need early intervention.
k) Last but not the least to establish a multidisciplinary patient safety team for PPH and eclampsia and septicaemia.
l) Lastly, our institution should improve with a critical obstetric care unit.

CONCLUSION:
Maternal mortality is a human right issue. Most maternal death are preventable by health education of masses, adequate healthcare in the community and good transport facilities. As safe

motherhood is a women's right, maternal mortality prevention is a great challenge. Effective reduction of maternal mortality requires long-term effort as it requires strengthening of the healthcare system. [Insight Maternal Mortality-An Indian Facebook, 2012 page- 166 -167, jaypee brothers]

G) MATERNAL MORTALITY IN A TERTIARY CARE HOSPITAL IN CENTRAL INDIA (MADHYA PRADESH) REPORTED BY:

Prof LAXMI MARU,
Asso.prof ANUPAMA DAVE

Why do these women die? (3 delays model)

a) Delay in decision to seek care:
-- Lack of understanding of complications, acceptance of maternal death, low status of women, sociocultural barriers to seeking care
b) Delay in reaching care:
-- Mountains, islands, rivers -- poor organization c) Delay in receiving care:
-- Supplies, personnel, poorly trained personnel with punitive attitude, finances.

Problems Faced at Grass Root Levels:

It is not possible to predict which mother will develop complication, most com- plication cannot be prevented by good antenatal care. Once major obstetrics complication, which can cause death develop, even a trained TBA or a nurse cannot do much at home.

Problems Faced at Tertiary Level:

Late referral, lack of obstetric ICU, lack of sufficient nursing staff, lack of emergency drugs and equipment's, too much work load and scarcity of medical staff.

Current Situation:

a) Many interventions are not implemented properly
b) Lack of specialists and trained staff in rural areas
c) Delegation of EmOC functions not done weak monitoring of implementation-FRU's operationalization, deliveries and EmOC care, maternal deaths.
d) Lack of integration and coordination of inputs.
e) Lack of monitoring of outputs and weak supervision.
f) Many problems in design
g) Availability of blood remains as a problem - not many blood storage units started.
h) Referral transport money not much used.
i) Too many activities and programs -no focus on EmOC or delivery care. No large scale or systematic evaluation.
j) FRU's still not functional - no monitoring.

Lessons and Future Directions:

a) Key objectives are improving availability, utilization and quality of EmOC.
b) Stepwise improvements.

Recommendations Steps to be taken:

a) Eradicate extreme poverty and hunger.
b) Achieve universal primary education.
c) Promote gender equality and empower women.
d) Reduce child mortality.
e) Improve maternal health.
f) Combat HIV/AIDS malaria and other diseases.
g) Ensure environmental sustainability.
h) A global partnership for development.

Benefits of Obstetrics ICU:

Prevention and early recognition of problems, prompt management, peripartum monitoring, residents - training, non-invasive monitoring, invasive, medical application, foetal monitoring. India can reduce MMR. But needs political and societal commitment. [Insight Maternal Mortality-An
Indian Facebook, 2012 page 117-122, 164, jaypee brothers]

"Maternal mortality is a neglected tragedy and it has been neglected because those who suffer are neglected people with least power and influence, they are poor, the rural peasants and above all women".

H) MMR SGRD IMS AND R AMRITSAR (PUNJAB) REPORTED BY:
Prof MADHU NAGPAL

a) Improving infrastructure for maternity services at every step including training of all paramedics even transport vehicle drivers to act swiftly in case of emergency.
b) More emphasis on emergency obstetrical care with round the clock availability of specialists in primary/secondary healthcare.
c) Mandatory antenatal booking with institutional delivery being emphasized.
d) Team work for critical care obstetrics, availability of HDU, CCU beds and NICU facilities for improving maternal and perinatal outcome.
e) Ensuring availability of blood and its components whenever required in emergency situations.
f) Anaemia prevention is an important aspect keeping in view the prevalence in pregnancy.
g) Promoting the use of contraception to limit family structure which will improve women's health in general.
h) During postgraduate teaching - emergency obstetrics, critical care, mock drills for shoulder dystocia, PPH, eclampsia management, step wise devascularisation should be essentially taught.
i) Implementation of national programs in true spirit is in woman's benefit.

Overall inculcation of will to work attitude will help a lot. [Insight Maternal Mortality-An Indian Facebook, 2012 page -167-168, jaypee]

I) MATERNAL MORTALITY IN ANDAMAN AND NICOBAR ISLAND REPORTED BY:
Prof **MK SAHA,**
Prof **INDU CHAWLA,**
Prof **ANIS AKHTARKHAVARI**

POSITIVE CONTRIBUTORS TO LOWER MATERNAL MORTALITY IN ANDAMAN AND NICOBAR ISLANDS:

a) Ninety-eight percent registration/booking of antenatal cases.
b) Eighty-eight percent institutional deliveries.
c) High level of motivation of blood donors.
d) Efficient transportation system.
e) Deliveries being conducted by nurses who have years of experience.

Shortcomings:

a) Inadequate postoperative monitoring which requires services of resident doctors/trained house surgeons round the clock.
b) No availability of swift access to life-saving technology.
c) Despite very good antenatal coverage 16.66% maternal mortality was due to intractable heart failure secondary to severe anaemia. A matter of grave concern.
d) Geographical constraints arising out of scattered Islands.
e) Lack of blood bank facility in any place other than Port Blair.
f) Reluctance of specialists to join Andaman and Nicobar Islands.

Remedial Measures that have been taken Over the Years

a) Training of medical officers in emergency obstetrics: 2 doctors trained so far.
b) Training of staff nurses in skilled birth attendants (SBA): 54 nurses trained already and the training process is ongoing.
c) Reproductive and child health (RCH) training to nursing personnel: 111 staff nurses, 3 PHN, 27 LHV, 182 ANM and 29 AANM have already been trained.
d) Provision of kits at several health centres for testing blood for HIV and HbsAg to facilitate transfusion in remote areas in cases of postpartum haemorrhage.
e) Provision of Pitocin, Methergin and magnesium sulphate to all sub enters and all these plus injectable prostaglandins to all PHCS and CHCS to combat PPH.
f) Contacting the Gynaecologist, posted at GB Pant Hospital, by mobile phone in cases of obstetric emergencies requiring evacuation has been made mandatory, of late.
g) Ministry of Health and Family Welfare, Government of India has been deputing specialists to Andaman and Nicobar Islands on short-term duty from central health services for 90 days on rotation to overcome the perpetual shortage of specialists in Andaman and Nicobar Islands.

Summary:

Andaman and Nicobar Islands is situated some 1200 Kilometres away from mainland India. But the presence of a dense network of health infrastructure, strewn all over the Islands, in the form of one referral hospital, five urban health centres, four community health centres, twenty primary health centres and one hundred and fifteen subsidiary health centres speaks for itself how carefully designed the healthcare delivery system is. The presence of so many health institutions in such a small Union Territory does defy the Indian public health standards (IPHS) though, but it is certainly for the betterment of the Islanders. The ANC registration rate of 98% is perhaps the best in the country and so is the institutional delivery rate of 88%. The ten-year average maternal mortality ratio for the entire Andaman and Nicobar Islands of 86.7% is yet another milestone for this Union Territory. But against the backdrop of such glorifying vital statistics there are matters of serious concerns. The islands healthcare sys- tem is riddled with a perpetual manpower crisis. The specialists from mainland India are not too keen to come and serve in such remote places. Out of 51 sanctioned posts of specialists presently only 09 posts are filled up by MOH and FW. This is one of the constraints that this Union Territory is grappling with all these years. The others are: inspite of 98% ANC registration, and a large number of antenatal patients attending over ten ANC visits, as many as five maternal deaths (16.66%) took place due to intractable heart failure as a result of severe anaemia. This clearly speaks of serious lacuna in the manner in which antenatal care is provided.

Detailed scrutiny of case records revealed that most of these patients did not turn up for routine ANC after initial registration. In any case, this is an important shortcoming that we are looking into. The other serious setback is three maternal deaths (10%) took place in GB Pant hospital itself as a result of late detection of intraperitoneal bleeding following caesarean section. These deaths could have easily been avoided had these patients been carefully monitored in the Postoperative period. The labour ward is generally managed by a general duty medical officer with no special knowledge in obstetrics. The number of specialists is far too few to look after every admitted patient on a regular basis. Moreover, in all these three cases caesarean sections were performed by general duty medical officers (CHS Cadre) with postgraduate qualifications who were posted on a short-term rotation basis by MOH and FW to overcome the manpower crises here but they did not have much experience in performing caesarean section before coming to this place. They were initially trained and later on allowed to do caesareans by themselves. Subsequently, however, posting of specialists, exclusively, by MOH and FW has indeed changed the scenario greatly. There has been no such death thereafter. However, if there were regular junior residents or house surgeons in obstetrics and gynaecology things would have been different altogether, particularly in terms of monitoring the postoperative cases. Regular refresher training to ANMS and strict supervision of antenatal care by trained personnel can make a significant difference in the overall maternal health scenario in this island territory. We are striving hard to accomplish this. A series of measures, as highlighted above, has already been taken in a bid to reduce maternal mortality further. These coupled with the extraordinary importance that the Ministry of Health and Family Welfare, Government of India is paying in recent times, by tracking every antenatal mothers and critically analysing every single maternal deaths that occurs anywhere in India, both in the form of community based review as well as the facility based review, to know the exact cause of such deaths and the measures that can be taken to prevent its recurrence, will certainly bring down MMR to a respectable level. Such extraordinary measure will surely bear fruit if we all act conscientiously with the conviction that our profession demands. [Insight Maternal Mortality-An Indian Facebook, 2012 page 105 to 113 jaypee brothers]

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Original Article

PRE-OPERATIVE BILATERAL UTERINE ARTERY CATHETERISATION AND INTRAOPERATIVE EMBOLIZATION IN PREVENTION AND TREATMENT OF HEMORRHAGE DURING CAESAREAN SECTION IN PLACENTA PREVIA – A CASE SERIES IN A TERTIARY CARE HOSPITAL

Rahul Chaudhuri,[1] Gairik Bera [2]✉

ABSTRACT

BACKGROUND: Placenta previa is defined as complete or partial covering of cervical internal os with the placenta. Placenta previa is a major risk factor for obstetric haemorrhage. Uterine artery embolization (UAE) reduces blood flow to the lower uterine segment which helps to reduce blood loss during placental separation.

OBJECTIVE: Though UAE is a well-established modality to reduce obstetric hemorrhage, we will explore success, benefit and complications of UAE in placenta previa patiens.

METHOD: This is a case series. We have collected data from 1st October, 2017 to 31st December, 2017 at Department of Obstetrics and Gynecology, Command Hospital (Eastern Command) Kolkata.

RESULTS: In our study, we performed UAE in the five patients with placenta previa.

Mean operative blood loss was 1100 ml. We found 60% success in UAE and only 40% patient required blood transfusion. In our study no patient required hysterectomy. All patients were discharged without any mortality and morbidity.

CONCLUSION: UAE is technically demanding, require specially trained interventional radiologist in a properly equipped radiology suit. In those facilities, uterine artery embolization can be helpful to patients who wish to preserve fertility but have high risk for obstetric hemorrhage during cesarean section.

KEY WORDS: Haemorrhage, Placenta previa, Uterine artery embolization

INTRODUCTION

Placenta previa is defined as complete or partial covering of cervical internal os with the placenta [1]. The exact pathophysiology is unknown but uterine scarring is a potential risk factor. Other important risk factors for placenta previa include advanced maternal age, high parity and history of placenta previa [2, 3, 4]. Incidence of placenta previa is 3-5 per 1000 pregnancy [5]. This rate is expected to increase in the coming years due to high rate of caesarean deliveries and subsequently more pregnancies with uterine scarring.

Obstetrical hemorrhage is the leading cause of maternal morbidity and mortality worldwide [6]. Placenta previa is a major risk factor for obstetric haemorrhage [7]. This is strongly associated with higher risk of intraoperative bleeding and postpartum haemorrhage (PPH), which leads to more need of blood transfusion and further surgical procedures like devascularisation and emergency hysterectomy [8].

Uterine artery embolization (UAE), first described by Brown et al in 1979 is a highly specialized and efficacious method that can be used both prophylactically and therapeutically to reduce hemorrhage during C-Section in Placenta previa. Reduction of blood flow to the lower uterine segment by UAE helps to reduce blood loss during placental separation. Effectiveness of UAE is very high; a recent review reported a more than 90 % success rate [9].

Though it is a well-established modality in reducing bleeding in placenta previa, UAE is not always successful, and various factors are associated with the failure [10]. In this case series we will explore success, benefit and complications of UAE in our institute.

MATERIALS AND METHODS

Before surgery, written and informed consent are taken. Patients were taken to Cath Lab fitted with a moveable C-arm equipped with digital subtraction angiography. A 6F sheath was placed in the right common femoral artery using Seldinger technique under local anaesthesia. Selective catheterization of the left uterine artery was performed with a 5F COBRA- C1 catheter. Same procedure done from left common femoral artery to catheterize right uterine artery.

After the infant has been delivered and the umbilical cord clamped post caesarean, the obstetrician clipped any bleeding vessels using haemostatic forceps and packed the vagina and the uterus with the placenta still in situ. Under fluoroscopic guidance, the left uterine artery was embolized first, following which the right uterine artery was embolized with Gelform sponge pledges mixed with contrast medium. Both uterine arteries were embolized until there was adequate stasis, and the catheter and sheath were kept stationary in case further embolization was necessary. The complete placenta was removed manually from the uterine wall.

After closing the uterine lumen and abdominal cavity and observing no vaginal bleeding, the angiocatheter was removed under fluoroscopic guidance. The puncture point of the right femoral artery was compressed for haemostasis. Intra operative blood loss recorded.

TABLE 1: Five Cases

	Case 1	Case 2	Case 3	Case 4	Case 5
Age of patient	28	26	28	31	26
Gravid and parity	Primi	primi	Primi	Primi	Gravida2 parity 1
POG at admission	36wk 02 day	28wk 05 day	33wk o1d	35wk 05d	37wk 06d
USG	SLIUG @33w06d, Complete Placenta Previa	SLIUG @27w04d, Complete Placenta Previa	SLIUG @32w05d, Complete Placenta Previa	SLIUG @35w03d, Complete Placenta Previa	SLIUG @37w02d, Complete Placenta Previa
POG at termination	38wk	33wk	37wk	38wk	36wk
Undergone	UAE and elective LSCS on 26.08.15	UAE and elective LSCS on 28.11.15	UAE and elective LSCS on 30.04.16	UAE and elective LSCS on 14.01.17,	UAE and elective LSCS on 27.01.17
Further Intervention	Not Required	Not Required	B/L uterine artery pedicles and B/L cornual vessels ligated with uterine packing	B/L uterine artery pedicles and cornual vessels ligated, B/L Internal Iliac Artery ligation	Not Required
Pre op Hb	11.3 gm %	12.1 gm %	11.2 gm%	11.4 gm%	13.2 gm%
Intraoperative blood loss	1000ml	900ml	1200ml	1800ml	600ml
Hb after OT	7.9 gm%	9.5 gm%	7.0 gm%	6.7 gm%	11.6 gm%
Transfusion required	-	-	1 PRBC 1 FFP 1 Platelet	4 PRBC 4 FFP 2 Platelet	-
Hb Post op day 2	8.1 gm%	10.0gm%	8.5gm%	10.2gm%	12.0gm%

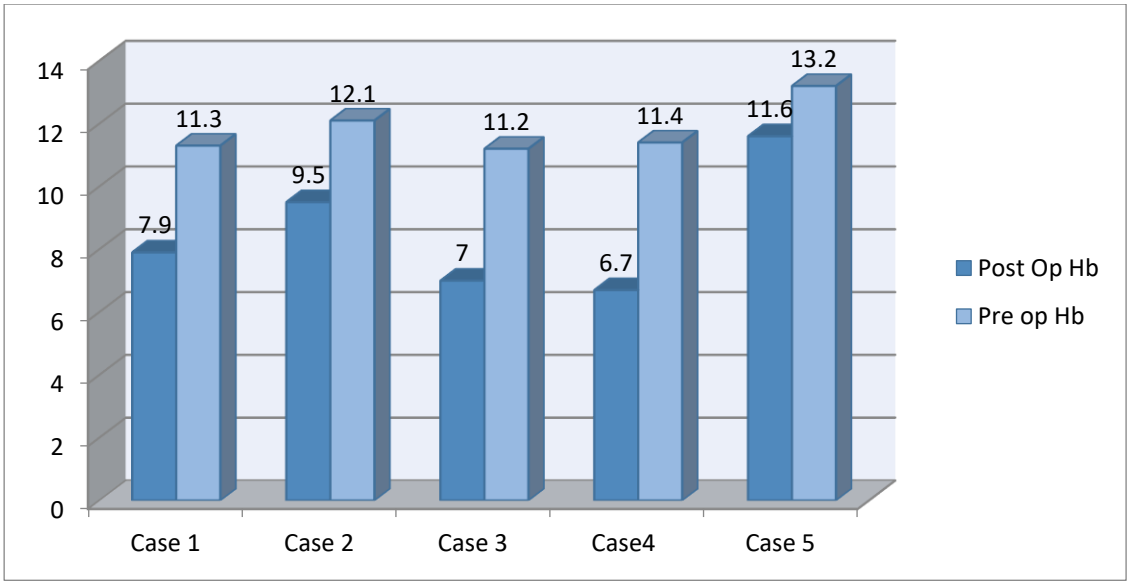

Diagram 1: Bar Diagram showing Pre- and Post-operative Hemoglobin (Hb) of 5 cases

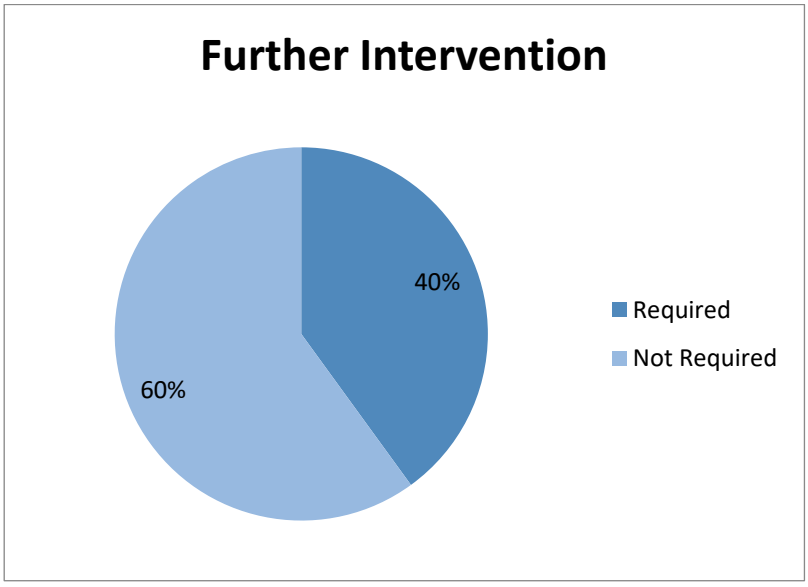

Diagram 2: Pie Diagram Showing requirement of further intervention in five cases

DISCUSSION

In this study, we performed UAE in the five patients with placenta previa. Mean age was 27.8 years (27.8 ±1.796 at CI 95%) among them 4 (80%) patients were primigravidae and 1(20%) patient was 2nd gravidae. Two patients (40%) delivered preterm baby and 3(60%) delivered term baby; mean period of gestation was 36 weeks (36.2 ±1.796 at CI 95%). As Case no 2 had uncontrolled severe pre-eclampsia and Case no 5 had scar tenderness they were taken for C-section and delivered preterm baby.

Mean operative blood loss was 1100 ml (1,100 ±392 at CI 95%) which is more compared to Sanad et al (2018) study (805.1 ± 224.5) 11, probable reason maybe they ligated uterine artery before uterine incision. Out of our five cases, two patients required further intervention to control hemorrhage. We found UAE is 60% successful which is low compared to 90% recited by other authors 9, 12.

Among 5 patients only 2(40%) patients required blood transfusion compared to 46% found by Tuzovic, L 13. In our study no patient required hysterectomy compared to 2.85% found by Santosh Kumari 14 and no patient developed AKI or DIC. During post-operative period one patient had post-operative fever and one patient complained of numbness at buttock and thigh, both patients recovered spontaneously. All patients were discharged without any mortality and morbidity.

Though our study population was less, we can clearly assume that prophylactic UAE significantly reduce intraoperative blood loss which significantly improve peripartum outcome of these high-risk pregnancies.

However, some concerns remain, as to the long-term effect of UAE on the uterine and ovarian blood supply as well as radiation exposure to the ovaries from the use of fluoroscopy during the procedure and its impact on future fertility. Radiation exposure during fluoroscopy were kept below 150 mGy as per National Council on Radiation Protection and Measurement guideline 15 but long-term effect on neonate is yet to be evaluated.

CONCLUSION

There has been ample research supporting the efficacy of UAE to control severe PPH before surgical intervention. UAE is technically demanding, requiring specially trained interventional radiologist in a properly equipped radiology suit.

A set up where facilities for endovascular catheterization are available, uterine artery embolization can be helpful to a patient who is high risk for hemorrhage during cesarean section in placenta previa and wishes fertility preservation. In the hands of a skilled interventional radiologist, it can be used as the procedure of choice in this setting.

REFERENCES

1. Ahn KH, Lee EH, Cho GJ, Hong SC, Oh MJ, Kim HJ. Anterior placenta previa in the mid-trimester of pregnancy as a risk factor for neonatal respiratory distress syndrome. PLoS One. 2018;13(11):e0207061. Published 2018 Nov 2. doi:10.1371/journal.pone.0207061
2. Olive EC, Roberts CL, Algert CS, Morris JM. Placenta praevia: maternal morbidity and place of birth. Aust N Z J Obstet Gynaecol. 2005;45(6):499-504. doi:10.1111/j.1479-828X.2005.00485.x
3. Oyelese Y, Smulian JC. Placenta previa, placenta accreta, and vasa previa. Obstet Gynecol. 2006;107(4):927-941. doi:10.1097/01.AOG.0000207559.15715.98
4. Gurol-Urganci I, Cromwell DA, Edozien LC, et al. Risk of placenta previa in second birth after first birth cesarean section: a population-based study and meta-analysis. BMC Pregnancy Childbirth. 2011;11:95. Published 2011 Nov 21. doi:10.1186/1471-2393-11-95
5. Adere A, Mulu A, Temesgen F. Neonatal and Maternal Complications of Placenta Praevia and Its Risk Factors in Tikur Anbessa Specialized and Gandhi Memorial Hospitals: Unmatched Case-Control Study. J Pregnancy. 2020;2020:5630296. Published 2020 Jan 6. doi:10.1155/2020/5630296
6. Selo-Ojeme DO. Primary postpartum haemorrhage. J Obstet Gynaecol. 2002;22(5):463-469. doi:10.1080/0144361021000003555
7. Ryu JM, Choi YS, Bae JY. Bleeding control using intrauterine continuous running suture during cesarean section in pregnant women with placenta previa. Arch Gynecol Obstet. 2019;299(1):135-139. doi:10.1007/s00404-018-4957-4
8. Tuzovic L. Complete versus incomplete placenta previa and obstetric outcome. Int J Gynaecol Obstet. 2006;93(2):110-117. doi:10.1016/j.ijgo.2006.02.006
9. Zhang XQ, Chen XT, Zhang YT, Mai CX. The Emergent Pelvic Artery Embolization in the Management of Postpartum Hemorrhage: A Systematic Review and Meta-analysis. Obstet Gynecol Surv. 2021;76(4):234-244. doi:10.1097/OGX.0000000000000887
10. Kim YJ, Yoon CJ, Seong NJ, et al. Failed pelvic arterial embolization for postpartum hemorrhage: clinical outcomes and predictive factors. J Vasc Interv Radiol. 2013;24(5):703-709. doi:10.1016/j.jvir.2013.02.013
11. Sanad, A.S., Mahran, A.E., Aboulfotouh, M.E. et al. The effect of uterine artery ligation in

patients with central placenta pevia: a randomized controlled trial. BMC Pregnancy Childbirth. 201818, 351. doi.org/10.1186/s12884-018-1989-5
12. Kim TH, Lee HH, Kim JM, Ryu AL, Chung SH, Seok Lee W. Uterine artery embolization for primary postpartum hemorrhage. Iran J Reprod Med. 2013;11(6):511-518.
13. Tuzovic, L. Complete versus incomplete placenta previa and obstetric outcome. Int J Gynaecol Obstet.2006;93:110-117. doi.org/10.1016/j.ijgo.2006.02.006
14. Kumari S, Singh B. Maternal and perinatal outcome of placenta previa in a tertiary care centre: an observational study. Int J Reprod Contracept Obstet Gynecol.2018;7(11):4701-4705 doi:10.18203/2320-1770.ijrcog20150678
15. Thabet A, Kalva SP, Liu B, Mueller PR, Lee SI. Interventional radiology in pregnancy complications: indications, technique, and methods for minimizing radiation exposure. Radiographics. 2012;32(1):255-274. doi:10.1148/rg.321115064

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Original Article

REVISIT INTO THE MATERNAL MORTALITY OF MEGHALAYA WITH SPECIAL REFERENCE TO MATERNAL MORTALITY IN A TERTIARY HEALTH CARE FROM 2017-2021

Ananya Das[1]✉, Subrat Panda[2]

ABSTRACT

Maternal health is becoming a global concern because the lives of millions of women in reproductive age can be saved through maternal health care services. Despite efforts that have been made to strengthen maternal health care services, maternal mortality is still high in most of the developing countries. Meghalaya is the least performing in the North Eastern States of India in state level analysis of maternal mortality according to District Reports from National Health Mission and Report 2014-15 of the Statistics Division, Ministry of Health & Family Welfare, Govt. of India. Maternal Mortality Rate is alarmingly high with Meghalaya registering 197 deaths per 1,00,000 deliveries. We reviewed our hospital statistics of maternal mortality for last 5 years 2017-21 and got MMR of around 396/100000 live births. The Meghalaya Maternal and Child Health Policy aims to achieve its objectives as per guidelines of WHO's Sustainable Development Goals (SDGs) timeline of 2030 and the NHP, 2017.

KEY WORDS: Antenatal Care, AAA Convergence, PMSMA, Maternal Death

INTRODUCTION

Maternal health is the health of women during pregnancy, childbirth and the postpartum period and maternal health care services are antenatal care (ANC), delivery care and postnatal care (PNC) services. Maternal health is becoming a global concern because the lives of millions of women in reproductive age can be saved through maternal health care services. Despite efforts that have been made to strengthen maternal health care services, maternal mortality is still high in most of the developing countries. With the above background, we decided to conduct a review of maternal mortality in this region with special reference to our hospital statistics.

PRESENT CONDITION OF HEALTH SYSTEM IN MEGHALAYA

The large number of maternal mortalities, especially in developing countries has been due to low level of maternal health care seeking behavior. Generally, the factors associated with utilization of maternal health services can be categorized as socio-economic and demographic factors such as; educational status of the mother, maternal age, occupation, mothers' knowledge of danger signs, marital status, women's autonomy, birth order, religion, sex of household head, household income, household size, husband's educational status, accessibility factors and factors related with women's perceived quality of maternal health care

services. Meghalaya is the least performing in the North Eastern States of India in state level analysis of maternal mortality according to District Reports from National Health Mission and Report 2014-15 of the Statistics Division, Ministry of Health & Family Welfare (MoHFW), Govt. of India. According to National Family Health Survey 4 (NFHS 4) only 50% mothers had at least 4 antenatal visits, 47.5% received post-natal care and 51.4% had institutional births. [1]
Maternal Mortality Ratio (MMR) of India for the period 2016-18, as per the latest report of the national Sample Registration system (SRS) data is 113/100,000 live births, declining by 17 points, from 130/ 100,000 live births in 2014-16. Maternal Mortality Rate is alarmingly high with Meghalaya registering 197 deaths per 1,00,000 deliveries. [1] The policy aims to achieve its objectives as per guidelines of World Health Organization (WHO)'s Sustainable Development Goals (SDGs) timeline of 2030 and the National Health Portal (NHP), 2017. This would pertain to the State's major health concerns namely decreasing maternal and infant mortality rates by ensuring antenatal care coverage to be sustained above 90% and skilled attendance at birth above 90% by 2025, reducing Under Five Mortality to 23 by 2025 and MMR from current levels to 100 by 2025. The policy will also aim to reduce Infant Mortality Rate to 28 by 2025 and reduce neo-natal mortality to 16 and still birth rate to "single digit" by 2025.Maternal and Infant Mortality Rates are of great concern to the State with 197 MMR (Sample Registration System (SRS), 2016-18) and 3.4% Infant Mortality Ratio (IMR) (34 deaths per 1000 live births) as per Health Management Information System (HMIS), Apr-Sept 2020.
These can be attributed mainly to teenage pregnancy, multiple gravida and untimely healthcare intervention. The State is proactively taking steps to ensure the safety of mother and child during pregnancy.It should be noted that State data also shows instances of geographical poverty whereby districts such as South Garo Hills and South West Khasi Hills show poorer health performances in comparison to its counterparts. This can be attributed to poor connectivity to these areas and lack of access to quality healthcare services.
In maternal death review audit conducted in our department, we found that there were 25 maternal deaths in the last 5 years from 2017-21. We had live births of around 6300 during the period, reaching an MMR of 396. MMR of 396/100000 live births are really high, but the reason might be that our institute is a tertiary referral centre. We get all high risk and critical cases referred from other hospitals. Out of 25 cases, 5 had Rheumatic Heart Disease with Valvular defects, 4 had Hypertensive Disorders of pregnancy namely Eclampsia and Severe Pre-eclampsia, 4 in septic shock, 3 with Antepartum Hemorrhage and Disseminated Intravascular Coagulation (DIC), 3 with COVID pneumonia and breathing difficulty.
Most of the cases mentioned above reported to our hospital very late. On inquiry from the patient party, we got to know that they never had any antenatal checkup throughout pregnancy. Also in obstetric emergency, there was much difficulty in transportation. Some even needed 1-2 days for commuting a distance of 50 kms (approx.) to our hospital. When we look at the demographic profile, most of them belong to lower socioeconomic status with no awareness or access to health care facility and also grand multiparous. Qualitative Health Surveys in regard to Focused Group Discussions regarding general awareness of availing health care facility in pregnancy and delivery is required.
With technology being an integral part of the present and future, the State's health policy will encourage use of Artificial Intelligence (AI) for problem solving and also predicting shortages and health needs of the population. Information Technology and data-based decision making is already being used in the State as seen with the launch of the MOTHER App in 2019 which uses data of expecting mothers in the State and tracks the progress of the pregnancy while ensuring proper antenatal care and also encouraging institutional delivery. The app is also being used to alert high risk cases which can drastically reduce mortality rates. So far, grassroots functionaries such as Accredited Social Health Activists (ASHAs) and Auxiliary Nurse Midwives (ANMs) have been trained to collect data and track said data. The Pradhan Mantri Surakshit Matritva Abhiyan (PMSMA) launched by Ministry of Health & Family Welfare (MoHFW), provides a fixed day for assured,

comprehensive and quality antenatal care free of cost to pregnant women on 9th of every month. This Programme strengthens antenatal care detection and follows up of high-risk pregnancies, contribute towards reduction of maternal deaths and reduce the MMR of India.

Janani Shishu Suraksha Karyakaram (JSSK): this scheme encompasses free maternity services for women and children, a nationwide scale-up of emergency referral systems and maternal death audits, and improvements in the governance and management of health services at all levels.

The State also ensures the right to birth spacing where birth spacing is defined as the time between two consecutive pregnancies which is not less than1000 days from day of conception. This will be implemented through the mother and Child Protection strategy which is part of the larger State health policy.

MATERNAL AND CHILD HEALTH PROTECTION POLICY

The three important dimensions for reducing the maternal and child deaths that will be addressed through the policy are:

i. Clinical Management: This implies availability of trained birth attendants and specialists to cater to pregnancies in remote areas. This also implies the availability of medicines and other clinical management tools and capabilities to prevent and reduce maternal and child deaths. The policy will ensure high quality antenatal care needs to be given to all the expecting mothers during all 3 trimesters and after the birth of the child. Data has shown that many deaths occur due to untimely intervention by healthcare professionals due to delayed visits to health institutions. Such evidence can be used to formulate and test interventions that can work in the local context. For instance, a simple instruction of requesting expecting mothers to visit the local PHC/CHC (Primary Health Centre / Community Health Centre) or any healthcare institutions on their expected date of delivery (EDD) irrespective of whether they are having labor pains can greatly reduce the risk to both mother and unborn child. The policy will also ensure timely availability of ambulances, improvement of referral system and training of available manpower.

ii. Public Health Dimension: AAA convergence model of public health action will be strengthened; in addition to ANMs and ASHAs, Anganwadi workers are essential in tackling the problem of high maternal mortality rates. They currently provide supplementary nutrition to pregnant women but their role could be expanded to respond to local challenges. Trainings will be imparted to AAAs to expand their role where they are able to cater to various other needs of expecting mothers including counseling on family planning. This aspect will lay emphasis on improving the quality of ANCs to ensure reduction in MMR as well as IMR. Through this team of frontline workers, a number of local issues can be addressed such as correction of anemia in pregnant women, compulsory registration of first pregnancies, regular Village Health and Nutrition Days (VHNDs), and use of various forms of contraceptives to practice birth spacing.

Public health infrastructure will be revamped to ensure proper equipment, hygienic beds and labor rooms are available at all levels of healthcare services. Data has shown that the State has a high number of home births which is also a cause of concern and it is imperative that institutional deliveries be encouraged so that mother can receive proper care during and after childbirth. One of the avenues for encouraging institutional deliveries is to improve the quality of health institutions from sub-centre level. iii. Socio-Economic Dimension: This implies the need to make people aware of the prevailing situation while providing proper counseling services and initiating dialogue and conversation around two main issues- Teenage Pregnancy and Multiple Gravida. Both types of pregnancies fall under the category of unintended pregnancies and are high risk. Around 40 percent of deliveries in the State fall under this category. The sensitization process should be driven by the concept that every child as well as mother requires at least 1000 days of undivided time and care. This will not only ensure a holistic development of the child's brain but also increase his/her chances of survival in future. In the meantime, the mother will also be able to regain her health before another pregnancy.

The modalities to implement the policy to save the lives of mothers and children are as under:

1. Need for maintaining a 1000-day window and significance of Birth Spacing measures to affect the same.
2. Convergence between different grassroots healthcare workers including ASHAs and Anganwadis as well as various government departments.
3. Constitution of Health and Gender forums involving village level women Self Help Groups (SHG) federations.
4. Constitution of Problem Driven Iterative Adaptation (PDIA) committees in each District headed by the DCs, which would have participation of district level heads from all the concerned Departments and the Non-governmental organizations / Missionaries working for the health sector. The committee will be responsible to diagnose problems and implement ideas in an iterative manner. All the district committees will convene together quarterly to share experience and ideas and measure the objective and key results.
5. Setting up of Counseling Camps and necessary training to teachers and counselors on how to sensitize masses about sex education and the right message to be spread.
6. Training grassroots healthcare workers as well as doctors so they are able to give out effective messages to people in terms of birth spacing, significance of 1000 day window as well as diet diversity.

The State Government's main objective with regards to this policy is to save the lives of mothers and infants with a larger objective of improving the life expectancy of people in the State while attempting to break the social stigma associated with use of birth control measures as well as the taboo surrounding discussion of teenage pregnancies.

Teenage pregnancy and Multiple Gravida have been identified as key factors for high maternal and infant mortality rates. As per the State data, teenage pregnancy accounts for 10% and Multiple Gravida accounts for 30 % of the total pregnancies in Meghalaya. It is important that during teenage years, high quality teaching and learning about a broad variety of topics related to sex, exploring values and beliefs about topics and gaining the skills that are needed to navigate relationships and manage one's own sexual health. This will enable the individual to understand the dangers of teenage pregnancy and gain knowledge on the physical, mental and emotional consequences of sex. The policy will also enable counseling for sexually active couples by Medical Officers/public health nurses/ trained counselors; this will ensure that residents are made aware of issues such as family planning, contraceptives, sexual health and consent. This will bring about better overall health and wellness and a more socially conscientious population. Although the maternal health-care scenario is gloomy in Meghalaya, a limited number of studies are available in the state of Meghalaya. Second, Meghalaya is predominantly a tribal state and characterized by mountainous terrains. Different studies already showed that performance indicator of maternal health care is poor among tribal population especially in Northeastern region of India because of its geographical isolation from mainland India.

A study carried out in Assam by Dutta and Sengupta found that factors such as lack of ambulance facilities and non-availability person at home to take care of pregnant women have strong relation with shaping the health-seeking behavior among the pregnant women. If the health institutions are not available at nearby home, it is difficult to get transportation as well as accompanied person as it involves with financial factors such as extra expenses on lodging and fooding. [2] Bhattacharyya and Pala [3] in their study in East Khasi Hills Districts found that distance to the health institutions is the major barriers to the health-care utilization. Similarly, results found in recent study in Meghalaya by Sarkar et al. [4] showed that distant hospitals and bad road conditions are the main reasons for women preferred to go for home delivers in rural Meghalaya.

RECOMMENDATIONS

To achieve the global goal of improving maternal health and to save women's lives we need to do more to reach those who are most at risk, such as women in rural areas, urban slums, poorer households, adolescent mothers, women from minorities and tribal, Scheduled Caste and Scheduled Tribe groups. Institutional deliveries and facility based Antenatal care should be stressed upon and strictly adhered to.

Prompt patient care services with proper triaging at the health care facility to be done.
Government policies regarding different schemes should be time and again be discussed in mass awareness campaigns and made available to the pregnant and laboring patients.
Education regarding family planning should also be an integral part of the antenatal and postnatal care.
This continuum of care and our dedication to improvement of maternal health for healthy mother and baby can only lead to healthy nation.

REFFRENCES

1. International Institute for Population Sciences National family health Survey (NFHS-4), 2015-16: India, Mumbai, 2017. Available: http://rchiips.org/nfhs/NFHS-4Reports/India.pdf [Accessed 29 Jan 2022].
2. Dutta P, Sengupta B. Barriers of maternal health seeking behavior: A bayesian analysis survey based evidence from Assam, India. J Womens Health Care 2018;7:1-2.
3. Bhattacharyya H, Pala S. Assessment of delivery pattern and factors influencing the place of delivery among women in East Khasi Hills Districts of Meghalaya. J Evol Med Dent Sci 2012;1:391-9.
4. Sarkar A, Kharmujai OM, Lynrah W, Suokhrie NU. Factors influencing the place of delivery in rural Meghalaya, India: A qualitative study. J Fam Med 2018;7:98-103.

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Original Article

A STUDY OF MATERNAL MORTALITY IN A RURAL TERTIARY HOSPITAL OF WEST BENGAL

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ABSTRACT

BACKGROUND: Maternal mortality actually reflects the quality of obstetric services given to pregnant women in any community.

Objectives of the study is to calculate the maternal mortality rate in a teaching institution, to assess the epidemiological aspects of maternal mortality and to assess the different causes of maternal mortality.

METHODS: This was a retrospective study where individual records of all maternal deaths occurring in our hospital during the past 2 years from 2020 to 2021 were studied. The cause of death which led to death in each individual case were analyzed.

RESULTS: A total of 44 maternal deaths occurred during the study period. The average maternal mortality ratio in the study period was 333.4/100000 live births. Most maternal deaths (38.6%) occurred in the age group of 25–29 years, multiparous women (63.6%) and 43.2% cases were referred cases. Direct causes accounted for 65.9% of maternal deaths where as 34% of maternal deaths were due to indirect causes. Haemorrhage (20.4%) and pre-eclampsia/eclampsia (18.1%) were the major direct causes of maternal deaths. Out of 44 maternal deaths, 43.2% were referred cases from health centres, district hospitals etc.

CONCLUSION: Early detection of high-risk pregnancies and early referral of such patients to a tertiary center can reduce the complications of high-risk pregnancies and subsequent deaths.

KEY WORDS: Eclampsia, Haemorrhage, Maternal Mortality ratio, Maternal deaths

INTRODUCTION

"A maternal death is defined as death of a woman while pregnant or within 42 days of termination of pregnancy, irrespective of the duration and site of pregnancy, from any cause related to or aggravated by pregnancy or its management" (World Health Organization, WHO; ICD-10). The global maternal mortality ratio (MMR) was 210 maternal deaths per 100 000 live births in 2013, which had reduced down from 380 maternal deaths per 100 000 live births in 1990[1]. About 99% of these women are from developing world with over 85% concentrated in Africa and Asia[2]. About 295 000 women died

during and following pregnancy and childbirth in 2017. In India, Maternal Mortality Ratio has declined to 113 in 2016-18 from 122 in 2015-17 and 130 in 2014-2016.[3] United Nation (UN) report card on Millennium Development Goal-5 concluded that little progress had been made in sub-Saharan Africa where half of all maternal deaths take place. The progress shown by the South Asian countries including India which accounts for 25% of all maternal deaths is also not impressive[4].

Keeping these in mind this study was done in a tertiary medical college hospital situated in rural part of West Bengal to assess maternal mortality where large numbers of patients are referred from surrounding rural areas. This study also studies the causes of maternal mortality and suggest measures to reduce the same.

MATERIALS AND METHODS

AIMS AND OBJECTIVES

1. To calculate the maternal mortality rate in a teaching institution.
2. To assess the epidemiological aspects of maternal mortality.
3. To assess the different causes of maternal mortality.

Our hospital is a rural tertiary care center situated in West Bengal where a large number of patients are referred from Primary health centers, District hospitals and surrounding rural areas. The present study was 2 years retrospective study, conducted in the department of Obstetrics and Gynecology of this hospital. Data regarding maternal mortality was collected from maternal mortality Register from January 2020 to December 2021 with consent of hospital authority. The data of maternal deaths were collected and analyzed with a view to find out the avoidable risk factors. Direct causes of maternal death included haemorrhage, eclampsia / pregnancy induced hypertension (PIH), sepsis, ectopic pregnancy and other causes (rupture uterus, retained placenta, inversion of uterus etc.). Indirect causes included anaemia, jaundice, heart disease, respiratory and miscellaneous causes (fever, carcinoma of cervix/ovary with pregnancy, rupture of ovarian cyst with pregnancy, renal, central nervous system (CNS) causes, anaesthetic cause etc.).

RESULTS

During our study period, January 2020 to December 2021, there were 44 maternal deaths in total. In 2020 maternal deaths were 24 and maternal mortality ratio (MMR) was 344.1/1 lakh live births (6974 live births in 2020). In 2021, 20 maternal deaths were recorded with MMR 322.8/1 lakh live births (6195 live births in 2021). Average maternal mortality was found to be 333.4/ 1lakh live births in our study period. Maternal mortality was mostly seen among patients of 25 to 29 years (38.6%) as summarized in Table 1. More deaths were reported in multiparous women (63.6%). Out of 44 maternal deaths 43.2% were referred cases from health centres, district hospitals etc. (Table 1).

In the study period, direct causes contributed to 65.9% of the maternal deaths whereas indirect causes were 34%. The most common direct cause was hemorrhage (20.4%) considering ante partum, intra partum and postpartum deaths in the study period. Other important causes contributing to the mortality were pregnancy induced hypertension, (18.1%) and sepsis (15.1%). Among the indirect causes of maternal death respiratory causes in pregnancy (13.6%) and renal causes (4.5%) contributed more. The direct and indirect causes of death are summarized in Table 2 and 3 respectively. It was also observed in this study that maximum maternal deaths took place during immediate puerperal period. 4 (four) maternal deaths were during ante natal period while the other 40 mortalities were after delivery, mostly caesarean section.

DISCUSSION

Pregnancy is not a disease and childbirth are a universally celebrated event. Maternal mortality reflects the quality of obstetric services given to pregnant women in the community.

Increased coverage of skilled birth attendance and delivery in facilities properly resourced for emergency obstetric care is essential for prevention of the maternal deaths[1]. Between 2000

and 2017, South Asia achieved the greatest overall percentage reduction in MMR, with a reduction of 59 per cent (from 395 to 163 maternal deaths per 100,000 live births). Sub-Saharan Africa achieved a substantial reduction of 39 per cent of maternal mortality during this[5]. High incidence of maternal deaths reflects poor quality of maternal services, late referral and low socioeconomic status of the community[6].

The average maternal mortality rate in the study period was 333.4/100000 live births. The maternal mortality ratio (MMR) in India is 113/100,000 live births (SRS 2016-18). Various studies done in India in the last 15 years have shown wide variation in MMR ranging from 47/100000 to 625/100000 births[6,7,8,9,10]. Our study has comparatively high MMR, which could be due to the fact, that our hospital is a tertiary care hospital and receives a lot of complicated referrals from rural areas and often at a very late stage. In West Bengal MMR was 98/100,000 live births in 2016-18. But the maternal death varies in various districts of West Bengal from 31%-235%[11].

In our study, 54.5% of maternal deaths were in the age group of 20 to 29 years, as highest numbers of births are reported in this age group. This is concomitant with the prevailing custom of early marriage in rural areas[12].

63.8% of maternal deaths were reported in multiparous patients. Our findings were similar to studies by Murthy[6] and Jadhav[8]. 43.2% were referred cases in our study. In a similar study done by Jain et al in a tertiary care center in West Bengal 60% cases were found to be referred cases[13].

In our study, 65.9% of maternal deaths were due to direct causes. Hemorrhage (20.4%) and pre-eclampsia/eclampsia (18.1%) were the major direct causes of maternal deaths. Our findings were consistent with studies by Murthy[6], Jadhav [8], Onakewhor[10] and Shah[11]. In a systematic review by WHO, hemorrhage was the leading cause of maternal death in Africa and Asia 33.9% and 30.8%, respectively[14]. Similar findings were seen in the study by Jain et al in West Bengal[13]. Maternal death review meetings conducted monthly in the institution analyzed the cause of deaths and the steps needed to prevent such deaths. It was seen that many of these deaths were preventable if patients were given appropriate treatment at periphery and timely referral to higher centers was done. In many peripheral centers 24 hours caesarean section facility and blood bank facility is not available which lead to delay in-patient treatment. Delay in arrangement of transport of patient to our center and reluctance of patient attendants in giving consent for operation also added to the delay of treatment.

Training of medical officers, staff nurses and healthcare workers working in rural areas by programs like basic emergency obstetrics care (BEMOC) and skilled attendant at birth (SAB) training would perhaps reduce maternal mortality. Maternal deaths can be prevented by improving the health care facilities in rural areas by ensuring continuous availability of certain basic drugs like injection magnesium sulfate, tablet misoprostol as most maternal deaths in rural areas are still due to eclampsia and post-partum hemorrhage [6]. Blood banks should also be available in the rural health centers. Roads of rural areas should be well connected to the nearby towns. Proper reproductive health education and iron supplementation should be started in schools itself to reduce the incidence of anaemia.

Delivery in institutional facilities has risen from 26 percent in 1992-93 to 72 percent in 2009. Millennium Development Goal (MDG) was established in United Nations in 2000. One of the targets was to reduce MMR by three quarters (75%) between 1990 and 2015 and also to achieve, by 2015, universal access to reproductive health [14]. Since MDG could not be achieved new post 2015 target (sustainable development goal) has been set up. By 2030, all countries should reduce MMR by at least two thirds of their 2010 baseline level. The average global target is an MMR of less than 70/100 000 live births by 2030. The supplementary national target is that no country should have an MMR greater than 140/100 000 live births (a number twice the global target) by 2030[15].

Since good number of cases of maternal death is seen in referred cases with haemorrhage being the commonest case, proper antenatal care, awareness in the community, early detection of high-risk pregnancies and early referral of such patients to a tertiary center can reduce the complications and subsequent deaths.

Table 1. Demographic factors: Age, Parity of patients

Age of mother	Number of patients	Percentage
<20years	3	6.8%
20-24 years	7	15.9%
25-29 years	17	38.6%
30-34 years	8	18.1%
>35 Years	9	20.4%
Parity		
Primi	16	36.3%
Multi	28	63.6%
Referred / In patient		
Referred cases	19	43.2%
In patient	25	56.8%

Table 2. Direct Obstetric causes of mortality

Year	Total	Hemorrhage (APH/IPH/PPH)	Pregnancy induced Hypertension	Sepsis excluding abortive	Abortion / Ectopic
2020	18	6	3	4	5
2021	11	3	5	3	0
Total (%)	29(65.9%)	9(20.4%)	8 (18.1%)	7(15.9%)	5(11.36%)

Table 3 – Indirect obstetrics causes of mortality

Year	Total	Anemia	CVS	Liver	Resp	Renal	CNS	Others
2020	6	1	0	2	1	1	1	0
2021	9	1	1	1	5	1	0	0
Total	15(34%)	2 (4.5%)	1(2.27%)	3 (6.8%)	6 (13.6%)	2 (4.5%)	1(2.27%)	0

REFFRENCES

Kassebaum NJ, Bertozzi-Villa A, Coggeshall MS, Shackelford KA, Steiner C, Heuton KR et al. Global, regional, and national levels and causes of maternal mortality during 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. Lancet Volume 384,No.9947,p 980-1004, 13 Sept 2014.

2. Badrinath M, Saraswathi A Karekal. Maternal Mortality: A Retrospective Study. IOSR Journal of Nursing and Health Science (IOSR-JNHS) Volume 4, Issue 2 Ver. V(Mar.-Apr. 2015), PP 10-13.

3. https://censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR%20Bulletin%202016-18.pdf

4. www.un.org/millenniumgoals/pdf/MDG_Report_2009_ENG.pdf. Accessed on 22.10.2015.

5. https://data.unicef.org/topic/maternal-health/maternal-mortality/ last accessed on 06/01/2021.

6. Bhaskar K Murthy, Mangala B Murthy, and Priya M Prabhu. Maternal Mortality in a Tertiary Care Hospital: A 10-year Review; Int J Prev Med. 2013 January; 4(1): 105–109

7. http://www.censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR_Bulletein-2010-12.pdf (December 2013). Accessed on 22.10.2015

8. Jadhav AJ, Rote PG. Maternal mortality–changing trends. J Obstet Gynaecol India. 2007;57:398–400.

9. Onakewhor JU, Gharoro EP. Changing trends in maternal mortality in a developing country. Niger J Clin Pract. 2008;11:111– 20. [PubMed]

10. Shah RJ, Ali I, Banday A, Fazili A, Khan I.

Analysis of maternal mortality in a small teaching hospital attached to tertiary care hospital. Indian J Community Med. 2008;33:260–2
11. http://www.wbhealth.gov.in/go/2899.pdf. Accessed on 22.10.2015
12. Mukherjee S, Mukherjee S, Sarkar RR. A six year retrospective study of maternal mortality at a tertiary teaching institute in Uttar Pradesh. International Journal of Medical Science and Public Health 2014;Vol 3 Issue 11:1407-9.
13. Jain, Anita & Sengupta, Debjani & Sengupta, Mini. (2013). A study of maternal mortality in a tertiary health care centre in West Bengal. Journal of Evolution of Medical and Dental Sciences. 2. 3822-3828. 10.14260/jemds/767.
14. www.who.int/mediacentre/factsheets/fs290/en. Accessed on 28.10.2015
15. https://sustainabledevelopment.un.org/focussdgs.html. Accessed on 28.10.2015

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Original Article

MATERNAL DEATHS IN BURDWAN MEDICAL COLLEGE, BURDWAN, WEST BENGAL-TRENDS: (1999-2010)

Amitava Pal[1]✉

ABSTRACT

BACKGROUND: As pregnancy is not a disease, most maternal morbidity and mortality related to it are preventable. Maternal mortality is also an important measure to determine performance of health care system in the country. Unfortunately, there is a big difference in Maternal Mortality Rate (MMR) between developed and developing countries.

OBJECTIVE: This study is to determine different causes and factors related to maternal death at Burdwan Medical College.

METHOD: This is an observational analytical study. We have collected data of all 1003 maternal deaths from 1st October, 1999 to 31st December, 2010 at Department of Obstetrics and Gynecology, Burdwan Medical College, Burdwan, West Bengal. Evaluation of collected data is done from 2010 to 2020.

RESULTS: The retrospective analysis of maternal mortality shows that 86% of deaths were from direct causes like haemorrhage, eclampsia or severe hypertensive disorder and sepsis. Indirect causes like anaemia, hepatitis and other factors contributed 14% of maternal deaths. Most of the deaths (42%) occurred in women who were below 20 years of age. Highest maternal mortality was seen in primigravidas

CONCLUSION: The high MMR is because of the fact that our hospital receives mostly the cases which are usually un-booked and late referrals. Most of the patients die on their way or in the hospital just after reach because of transport problems. Emergency obstetric care (EOC), rural health centres with ambulances, early referral, tertiary care centres with ICU facilities will help to reduce MMR. Confidential enquiries and facility based maternal death review (MDR) in all hospitals is required.

KEY WORDS: Anaemia, Eclampsia, Haemorrhage, Maternal death

INTRODUCTION

Pregnancy is not a disease. Morbidity and mortality related to it are preventable. According to WHO, maternal mortality is an important measure of a women's health and indicative of the performance of health care system in the country. Unfortunately, there is a big divide between developed and developing world on the score of maternal mortality. Developed countries have MMR of around 20/100,000 live births per year while countries like Afghanistan the figure is 1600/100,000.

MATERIALS AND METHODS

MATERIAL AND METHODS:

This study was undertaken at Burdwan medical college, Burdwan, WB. From January 1999 to December 2010. Follow up study was done from 2010 to 2020 Dec.

Observation and analysis of Maternal Death in Our Hospital:

A total of 1003 maternal deaths were reported in the period from January 1999 to December 2010 and the total number of live births was 186,202, contributing maternal mortality ratio (MMR) of 538.66/100,000 live births, which is to some extent higher than national goal. Maximum number of maternal deaths occurred in the three months of August to October. The maternal mortality is not influenced by any seasonal factors but August to October is the peak time for delivery in this institution, which influences the maternal death. The maternal mortality ratio is not uniform during 12 years of study period. During this time the overall maternal mortality ranged from 622.26 (1999) to 553.3(2010) per 100,000 live births and there is substantial decline in maternal mortality ratio in 2004 to 2008.

Causes of Maternal Death:

The retrospective analysis of maternal mortality shows that 86% of deaths were from direct causes like haemorrhage (APH, PPH), eclampsia or severe hypertensive disorder and sepsis. Indirect causes like anaemia, hepatitis and other factors contributed 14% of maternal deaths.

In the year 2009 to 2010 highest number of maternal death occurred due to hypertensive disorder/ECL (42.30%) followed by haemorrhage (23%) [PPH- 15%, APH-5%, postabortal-3%)] and sepsis (16.35 %). Most important indirect causes of death in pregnancy were anaemia (1.92%), hepatitis (5.77%) and other relevant factors (10.57%).

Comparison with previous analysis shows that haemorrhage is the leading cause of maternal death during 1999 to 2008 followed by eclampsia and sepsis.

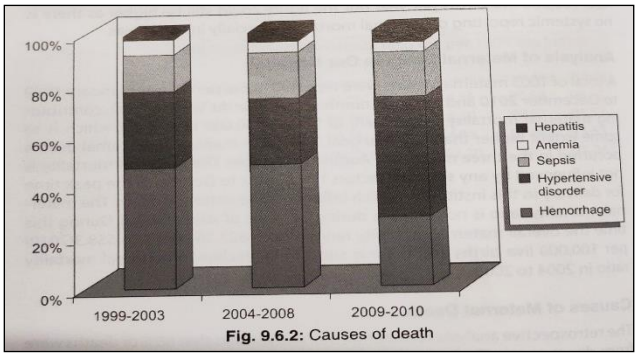

Fig. 9.6.2: Causes of death

Eclampsia was reduced during that period from 26% (1999-2003) to 21% (2004- 2008) and p-value is < 0.004 (significant).

In our study of 12 years, the lowest incidence of eclampsia (2.89%) was noted in the year 2008 and highest incidence (5.3%) was observed in the year 2001.

Increased use of Injection MgSO, as an anticonvulsant drug from the year 2003 resulted in definite reduction of maternal death rate in eclampsia, but there is no gradual reduction of case fatality rate due to difference in year-wise incidence, late referral, and poor antenatal check-up, incomplete management by peripheral hospitals before transfer and transfer of moribund patients before

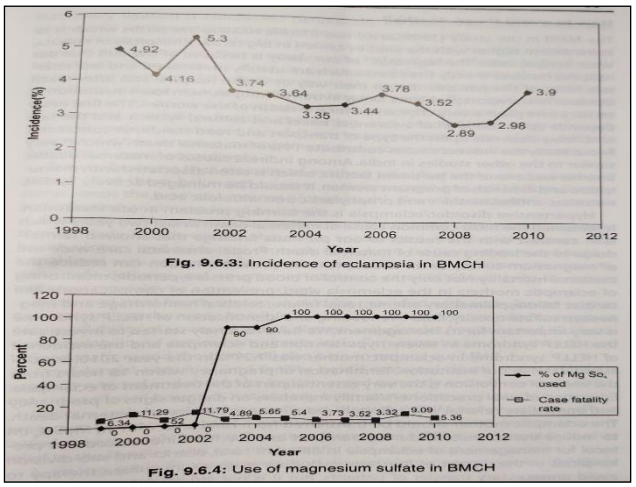

Fig. 9.6.3: Incidence of eclampsia in BMCH

Fig. 9.6.4: Use of magnesium sulfate in BMCH

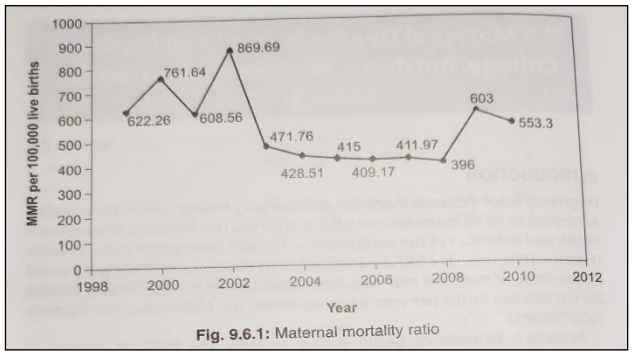

Fig. 9.6.1: Maternal mortality ratio

Death to the tertiary hospital as this hospital is an

apex level teaching hospital with a large catchments area and serves mainly for rural people. Even the referral cards with the patients are not properly filled up during transfer of the patients in higher centres to institute the proper treatment.

Most of the deaths (42%) occurred in women who were below 20 years of age. Highest maternal mortality was seen in primigravidas.

Out of 1003 maternal deaths in twelve years 530 (52.84%) occurred in ante- natal period, 396 (39.48%) occurred in intrapartum period and postabortal death contributed only 77 (7.68%) of cases.

DISCUSSION:

The MMR in our study (1999-2010) was 538.66/100,000 live births which is to some extent higher with the studies carried in big tertiary hospitals in Kolkata, West Bengal, India. The high MMR of our study is because of the fact that our hospital receives mostly the cases which are usually un-booked and late referrals. Most of the patients die on their way or in the hospital just after reach because of transport problems. Delay in transferring women to an institution of tertiary care plays a very critical role for the death of the women. The first delay depends upon the level of awareness, belief and cultural system and the second delay depends upon the type of transport and road condition concerned. In our study the indirect causes contribute 14% of maternal death which is very similar to the other studies in India. Among indirect causes of maternal deaths, anaemia was one of the pertinent factors, which is often associated with malnutrition and ill health of pregnant women. It should be managed actively by diet, nutrition, anthelminthic and prophylactic iron with folic acid.

Hypertensive disorder/eclampsia is the burning problem in our institution. It remained the most common cause of maternal death in last two years which is in contrast with the results to our previous findings that showed haemorrhage to the leading cause of maternal death. Proper antenatal care, wide use of magnesium sulphate as an anticonvulsant in the institution can reduce the maternal mortality. Not only the control of blood pressure, periodic monitoring of eclamptic mothers' cardiac failure, pulmonary edema, renal failure, cerebral haemorrhage and magnesium sulphate toxicity, fluid overloading and identification of HELLP syndrome is very important for its management. We have routinely started to investigate the HELLP syndrome in severe hypertension and eclampsia and the incidence of HELLP syndrome in eclamptic mother was 7.27% in the year 2010(unpublished data) in our institution. Termination of pregnancy within 18 hours from the onset of convulsion is the very essential part of the treatment of eclampsia. Education of rural practitioners/family members on danger signs of pregnancy and immediate referral will definitely reduce the incidence of maternal death. The eclamptic mother should be transferred from rural area with Inj M9SO, IM to reduce the convulsion during transport and we have introduced our protocol for management of eclampsia in different rural, district and sub-division hospitals in the district of Burdwan including magnesium sulphate therapy to avoid unnecessary transfer of patients. But it is not strictly followed in many of the hospitals. Adjacent districts like Birbhum, Bankura, Purulia, Hooghly and even Jharkhand increase the load of moribund patient in our institution without maintaining proper referral system and care.

Recently, it was identified that haemorrhage was the second leading cause of maternal death in this referral institution. The decline in death due to haemorrhage may be due to the fact that we have now introduced the active management of labour and wider use of prostaglandin as a utero-tonic agent. Whole blood is easily available in our institutional blood bank. Workshop for different conservative surgeries like brace suture, uterine and ovarian artery and internaliliac artery ligation is conducted periodically for the PG students, RMOS and emergency surgeons to tackle the emergency crisis in PPH.

Sepsis came out to be the third most common cause. The high incidence of sepsis is due to the fact that a good number of patients referred to this hospital with abortion done by illiterate quack practitioners. Unsafe abortion, septic induced abortion (SIA), delivery in unsafe circumstances and even at home contribute a slight increase in the incidence of sepsis The result of this study is in contrast in developed

countries where sepsis is no more a leading cause of maternal mortality. Aseptic precaution and prophylactic antibiotics are the main stay of treatment for obstetric management. Some of the patients may require conservative management and others may need laparotomy and definitive surgery accordingly.

Our study shows that majority of mothers who died were uneducated and almost all of them belonged to poor socioeconomic group. This low literacy status keeps the women ignorant of their health. Poverty, malnutrition, anaemia and infection are interrelated problems.

Education of females about hygiene, vaccination and basic health problems through lady health visitors should be encouraged. Training of doctors, lady health visitors and midwives through workshops by government and institutional level with regards to family planning, antenatal care, eclampsia, anaemia, clean safe delivery and emergency obstetric care (EOC) will help to reduce maternal mortality to a greater extent.

Basic and rural health centres should be provided with ambulances so that early referral can be made possible. In tertiary care centres, we need to improve easy availability of screened blood, plasma and platelet fractions and ICU facilities. Availability of senior consultants including obstetrician/anaesthetists and trained staffs round the clock will also help to reduce our MMR.

Confidential enquiries and facility based maternal death review (MDR) is urgently needed and should be implemented correctly and efficiently in different categories of hospitals. It is already been started in our institution.

Various cash benefit scheme offered through NRHM have really benefited pregnant women to opt for institutional delivery. Cashless facility recently introduced through Rastriya Swasthya Bima Yojana (RSBY) will provide further relief to the families who cannot bear the cost of medical emergencies.

A strong periodic monitoring and supervision system would definitely improve the maternal mortality. Due to above facts recently MMR in WB has come down from 101 [srs 2014 -16] to 98 per 1 lakh [SRS 2016-18]

CONCLUSION

In India, MMR (400) is alarming. Reducing maternal mortality by 2015 is part of millennium development goals (MDG) set forth by international community and endorsed by government of India, by virtue of which we are committed to reach the stated target in the next five years. According to Regional Health Forum, the three delays increase the risk to a woman's life, i.e., Delay in deciding to seek care, delay in reaching a medical facility and delay in receiving quality care at facility.

REFERENCE

1. Maternal Mortality in 2000. Estimates developed by WHO, UNICEF and UNFPA, Geneva, Switzerland, WHO; 2004.
2. India Millennium Development Goals Report 2006. Planning Commission, Govt. of India.
3. Maternal mortality in India 2001-2003, Trends, Causes and Risk Factors published by SRS
4. AbouZahr C, Wardlaw T, Stanton C, Hill K. Maternal mortality. World Health Stat Q. 1996;49(2):77-87.
5. MacDorman MF, Declercq E, Cabral H, Morton C. Recent Increases in the U.S. Maternal Mortality Rate: Disentangling Trends From Measurement Issues. Obstet Gynecol. 2016;128(3):447-455. doi:10.1097/AOG.0000000000001556
6. Geller, S.E., Koch, A.R., Garland, C.E. et al. A global view of severe maternal morbidity: moving beyond maternal mortality. Reprod Health 15, 98 (2018). https://doi.org/10.1186/s12978-018-0527-2
7. Bauserman, M., Lokangaka, A., Thorsten, V. et al. Risk factors for maternal death and trends in maternal mortality in low- and middle-income countries: a prospective longitudinal cohort analysis. Reprod Health 12, S5 (2015). https://doi.org/10.1186/1742-4755-12-S2-S5

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Review Article

SITUATION ANALYSIS OF ABORTION AND RELATED SERVICES IN SOUTH EAST ASIAN COUNTRIES

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ABSTRACT

The variable picture of abortion practices and related services are evolving all over the world. The mixed socio-economic structures and geo-political differences in the south east Asian countries deserve attention on this aspect. The permissible period to terminate a viable or non-viable pregnancy and different practices for that, also reflect the functionalities healthcare facilities. We have also discussed the different types of abortions and type of abortion techniques. Unsafe abortion practices have contributed significantly in the maternal mortality ratio over decades. The litigations, administrative responsibilities, religious propagandas and maternal health have been reviewed in this, one of the most populous regions of the world.

KEY WORDS: Healthcare facility, Unsafe abortion, Viable

BACKGROUND

The word abortion was derived from the latin word 'aboriri' which means to miscarry. In modern day abortion is defined as spontaneous or induced termination of pregnancy before the age of fetal viability. World health organisation defines abortion as termination of pregnancy before 20 weeks of gestation or a fetus born with weight <500 gms.1 With the revolution of early pregnancy diagnosis, it has been possible to diagnosis very early pregnancy. Ectopic vs intrauterine pregnancy has brought some confusion. Therefore an ad hoc international consensus group came up with the new terminology "pregnancy of unknown location – PUL".2Women may visit clinic for abortion services if there is no visible intrauterine pregnancy. Estimation of serum beta-human chorionic gonadotropin hormone and exclusion of ectopic pregnancy where absolute value >1500 IU/L is an essential component.3

Spontaneous abortion is beyond patient's control and the incidence can only be guessed roughly. The rate of spontaneous abortion is fairly constant and is roughly around 10-15%.4 However in case of spontaneous abortion final diagnosis is to be made by a repeat USG (preferably TVS) in an interval of 7-10 days.5 In the developing countries like the south Asian countries, the incidence of criminal abortion including self-afflicted abortion is high due to different socio-economical structures and values.

DISEASE BURDEN IN SOUTH EAST-ASIAN COUNTRIES AND SITUATION ANALYSIS

It is estimated that around 6 million abortions occur annually in India out of which two million are spontaneous and the rest are induced. Only 15

% of those are legal and rest are performed illegally. Unsafe abortions account for 8% of all maternal deaths in India. 60% of these are in the age group of 15-24 years.[6]

In an attempt to safeguard against indiscriminate abortion, different laws have been implemented in different south Asian countries. After introduction of Medical Termination Act (MTP) in 1972 in India, reported cases of MTP have been raised significantly. Authorised MTP centres have increased from 1877 in 1976 to 7121 in 1991. Similarly, the numbers of MTP cases have been raised from 25 reported cases in the year 1972-73 to 15.6 million cases in 2015-16 in India.[7]

Till 1997 abortion was permitted only to save the life of the mother in Pakistan. The situation changed when Commission of Inquiry for Women was appointed by the government of Pakistan, which recommended that "women's right to obtain an abortion by her own choice within the first 120 days of pregnancy be unambiguously declared an absolute right ". [8] Past time, the unmet need for family planning in Pakistan was quite high and use of contraceptive methods was not so much popular. Data retrieved from a 2012 national study focussing on abortion-care with related complications estimated that there were 2.2 million abortions in Pakistan in 2012, an annual rate of 50 per 1,000 women.[9]Earlier study demonstrated an abortion rate of 27 per 1,000 women in 2002.[10]Unfortunately, the abortion rate has likely increased substantially between 2002 and 2012. Contraceptive-use patterns and abortion rates varies among the provinces, with higher rates in Baluchistan and Sindh than in Khyber Pakhtunkhwa and Punjab.[11] Actually strategies for coping with uniformly high unintended pregnancy rates will differ among provinces.

Previously Bangladesh law has allowed abortion only to save the life of the mother.[12]The government has recognized the role of comprehensive abortion care in the eve of rapid population growth. Data from the Bangladesh Fertility Survey provides a unique framework for discussion of current attitude towards and prevalence of abortion in Bangladesh. The Bangladesh Fertility Survey (BFS) was conducted on a nationally representative sample survey where 88% of Bangladeshi women approved of abortion if the woman had conceived as a result of rape and premarital sex.[13] Danger to mother's life is a more acceptable basis for abortion in 53% cases, flowed by malformed child (30%).[14] Abortion due to economic reasons was acceptable to only 17% of women.[15] Educated couples were more liberal found to be more approving of abortion than the less educated. Around 646,600 induced abortions were conducted in Bangladesh in 2010, which indicates an annual rate of 18 abortions per 1,000 women in reproductive age.[16] The abortion rate is comparable with the national average in Dhaka and Sylhet, whereas higher than average in Rajshahi and Khulna,[17] lower than average in Chittagong and very low in Barisal.[18]The abortion rate in Bangladesh is higher than the estimated ratio for South-central Asia in 2008 (26 per 100).[19]

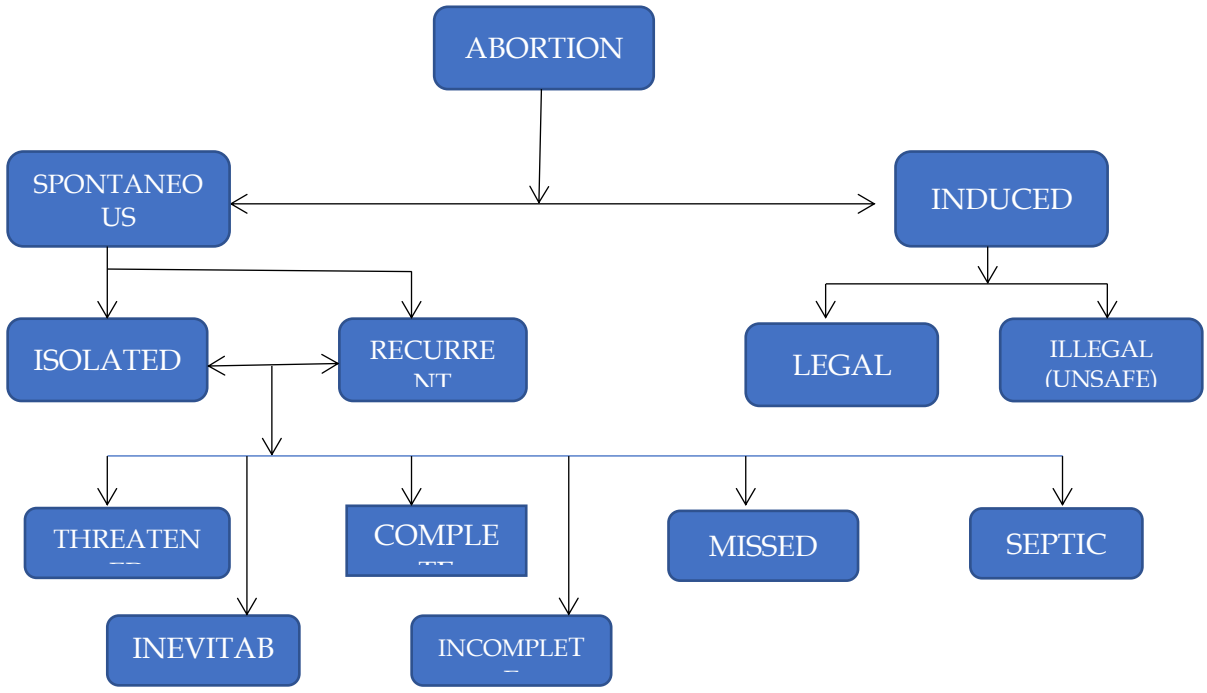
Before 2002, the law to perform abortion in Nepal was highly reserved only for saving the life of a woman. [20] Unsafe form of abortion was more common, and maternal mortality from abortion-complications was accountable for most of maternal deaths in major hospitals.[21] Honourable Supreme Court of Nepal legalised the right of women to terminate a pregnancy at up to 12 weeks of gestation on demand and up to 18 weeks of gestation where it resulted from rape or incest.[22] In the year of 2014, Nepal had 323,100 abortions out of which 137,000 were only legal, and 63,200 women were treated for abortion complications.[23]Overall the abortion rate in Nepal is 42 per 1,000 women aged 15–49 years, and the ratio is 56 per 100 live births currently.[24] The abortion rate in the Central Nepal is relatively higher which is 59 per 1,000 live birth than the national average. [25]

Inspite of nation-wide freely available contraception is in Sri Lanka, the absolute number of illegal abortions is growing on the top. In a report by Health Ministry stated that, daily over 500 abortions are being performed in Colombo.[26] Sri Lanka is restrictive on abortion law and strict enforcement which resulting avoidance in giving information by the women for abortions.[27] It is also difficult to determine the actual prevalence rate for illegal abortions. It has been estimated a decade ago that 125,000 to 175,000 abortions among which mostly are illegal, performed in a year.[28] Recently it has been reported that much higher rate of induced abortions per day amounting to 240,170 per year, contributing an

abortion ratio of 741 per 1000 live births.[29] Unfortunately illegal abortion contributes to 12.5% of all maternal deaths which is the third most common cause of maternal death in Srilanka.[30]

Afghanistan is leading with the highest birth rate in Asia. Average, an Afghan woman has approximately six children throughout the course of their reproductive lives.[31] Most of the women lack the necessary education to find out about the various methods of birth control. According to UNICEF, approximately 79 % of women in Afghanistan do not use birth control.[32] Unsafe abortions in the Maldives was evaluated in 2008 by International Planned Parenthood Federation (IPPF), which found that abortion is commonly seen amongst unmarried youth than married couples.[33] It has been also intercepted that that abortion is "a risk free procedure" which is viewed as a "safe alternative to contraception".[34] It is evident that abortion is frequently sought by young unmarried Maldivian women as a solution. Penal Code of Bhutan doesn't legalise abortion unless it is caused due to rape, mother critically ill and mentally challenged.[35,36] In the year 1999, Ministry of Health and Education regularised the "Medical Termination of Pregnancy" (MTP) as law where opinion of two medical practitioners is required. The number of abortions for medical termination is reported very low as per hospital data.[37] Strong adherence to social beliefs and women's acceptance of children born out of wedlock is an important issue. Recently increasing number of Bhutanese women are seeking unsafe abortion in the neighbouring areas of India.[38]

TYPES OF ABORTION



THREATENED ABORTION

Threatened abortion is a condition where pregnancy is so far intact but there is an obvious risk to its continuation. The presenting symptom is mainly bleeding which is followed by pain.[39] Sometimes they coincide together. Bleeding is predominantly in the form of spotting and pain is never out of proportion. Every woman with an early pregnancy, vaginal bleeding and pain should be evaluated to rule out ectopic pregnancy. Regular estimation of serum beta hcg and progesterone level and trans vaginal sonography are used to detect live fetus. Generally, half of the pregnancies

will abort but chances of abortion is less if there is fetal cardiac acvtivity.[40]Acetaminophen based analgesia will help to relieve discomfort from cramping. Bed rest is often recommended but does not improve outcome. Treatment with variant of progesterone or beta hcg may be tried.

INEVITABLE ABORTION

Abortion, where the changes have progressed to a state from where continuation of pregnancy is impossible. This is generally associated with vaginal bleeding, cervical dilatation and rhythmic uterine contraction. Infection is also associated with inevitable abortion.

INCOMPLETE ABORTION

Vaginal bleeding that follows partial or complete placental separation and dilatation of the cervical os is termed incomplete abortion. The entire product of conception is not expelled; instead, a part of it is left inside the uterine cavity. This is the commonest type met amongst women, hospitalised for miscarriage complications. TVS reveals echogenic material within the uterine cavity. ERPC (Evacuation of Retained Product of Conception) is done. Patient should be resuscitated before any active treatment is under taken. Incomplete abortion can also be managed medically by tablet Misoprostol 200 mcg vaginally every 4 hours in case of smaller intra uterine product of conception.

COMPLETE ABORTION

Expulsion of the entire product of conception en masse is called complete abortion. History of heavy bleeding, cramping and passage of tissue with fetus is common. Importantly during examination, the cervical os is closed. ATVS should be done along with beta hcg estimation for conformation.

MISSED ABORTION

Missed abortion also termed as early pregnancy failure. Early pregnancy appears to be normal with amenorrhoea, nausea and vomiting, breast changes and uterine growth. Serial beta hcg assay along with TVS should be done for confirmation of embryonic death. About 50% women with anembryonic pregnancy and 35% women with missed abortion will expel the product spontaneously within 14 days.[41] Patient can be managed medically by tablet Prostaglandin E1 (Misoprostol) 800 mcg vaginally in the posterior fornix which can be repeated after 24 hours if needed. Oral misoprostol is also effective but takes longer time compared to misoprostol given by vaginal route.[42] Misoprostol may also be used sublingually but it has greater incidence of pain, diarrhoea and fever.[43] A multi-centric trial has showed that pre-treatment with mifepristone does not increase success rate. Success rate of medical management is dependent on initial beta-hCG level (between 2000-20,000 IU/L) and gestational period less than 75 days.[44] A surgical intervention is needed sometimes if there is retained product, specifically if uterus is more than 12-week size. Vacuum aspiration, dilatation and evacuation are successful for evacuation of retained product (Zhang et al 2005). Follow up with transvaginal USG is recommended.

SEPTIC ABORTION

Any abortion associated with clinical evidences of infection of the uterus and its contents is called septic abortion. MTP Act legalising abortion by different governments has reduced the incidence of septic abortion. Septic abortion is specifically associated with rise of temperature of at least 100.4-degree F for 24 hours or more, offensive or purulent vaginal discharge and lower abdominal pain and tenderness. About 10% of abortions requiring admission to hospital are septic. In majority of cases the infection occurs following illegal induced abortion, though infection can occur in other cases as well. The microorganisms responsible are mainly Bacteroid group, Clostridium group, E. Coli, Klebsiella, Staphylococcus, Pseudomonas, Beta haemolytic Streptococcus. Mixed infection is more common. In majority (80%) the organisms are of endogenous origin. Management of clinical infection include prompt administration of broad-spectrum antibiotics. Suction evacuation is to be performed after resuscitating the patient. In severe cases intensive supportive care is essential. Prophylactic antibiotic should be given at the time of induced abortion or spontaneous abortion that requires medical or surgical intervention. Tablet Doxycycline 100 mg orally 1 hour before then 200 mg orally after surgical evacuation is

recommended by ACOG.

- ❖ From the discussion it is evident that spontaneous abortion can be of two types.

1. Isolated or sporadic
2. Recurrent

ISOLATED OR SPORADIC ABORTION

This can be of all clinical types discussed above and happens sporadically to a mother. There are many reasons. Fetal chromosomal anomalies are major causes among the fetal causes. 65% of first trimester abortions are spontaneous in nature.[45] Sporadic chromosomal errors account for 50% of all isolated first trimester abortions.[46] Chromosomal abnormalities increases with increase in maternal age. It has been found that chromosomal abnormalities are 57.2% when maternal age is less than 35 years, compared to 82.5% when maternal age is more than 35 years.[47] The significant maternal causes are infection, medical disorders like diabetes mellitus, thyroid disorders. There are some less studied associations with celiac disease (which can also cause recurrent abortion), unrepaired cyanotic disease, eating disorder like anorexia nervosa and bulimia nervosa, inflammatory bowel disease, systemic lupus erythematosus, Therapeutic doses of radiation are abortifacient although exposure to less than 5 rad does not increase the risk. Cancer survivors who were previously treated with abdomino -pelvic radiotherapy may later be at increased risk of miscarriage. First trimester (more if before 10 weeks of gestation) surgeries may increase the risk of abortion. More chances of pregnancy loss are associated with gynaecological surgeries than the procedure away from the uterus. It is advisable to postpone surgeries till second trimester if possible. [48] Laparoscopic surgeries have lesser effect on pregnancy.[49] Prophylactic injection with 17 – hydroxyl progesterone caproate should be considered. Also, oral micronized progesterone or 8% progesterone gel has also some role. Trauma may cause first trimester miscarriage. Extreme of nutrition- severe dietary deficiency and morbid obesity – are associated with increased miscarriage.[50] Obesity and increased BMI is associated with increased risk of miscarriage and recurrent abortion.[51]Miscarriage mostly related to chronic and heavy substance abuse. Alcohol is a potent teratogen.[52] Although cigarette smoking seems intuitive but unprove.[53] Excessive caffeine consumption has significant association with abortion risk.[54] Environmental toxin such as benzene has a role in abortion. Some chemicals like arsenic, lead, ethylene oxide have roles in abortion.[55]Recently DDT- dichloro diphenyl trichloro ethane has come up as an agent with excessive miscarriage in south Asian developing countries.[56] Ultrasound does not increase miscarriage rate whereas X Rays, sterilizing agents and antineoplastic drugs may cause slightly increased rate of abortion.[57]Antiphosphollipid antibodies (APLA) has a major role in abortion but it mainly causes recurrent abortion.[58]Increasing paternal age is significantly associated with increased risk of abortion.[59]

RECURRENT ABORTION

Recurrent spontaneous pregnancy loss is defined as three consecutive losses of three or more pregnancies. It affects about 1% of couples all over the world.[60] Recurrent miscarriage should be distinguished from sporadic pregnancy loss that implies intervening pregnancies that reached viability. The American society of reproductive medicine 2008 proposed that recurrent pregnancy loss be defined as 2 or more failed clinical pregnancies confirmed by either sonographic or histopathological examination. There are many causes of recurrent abortion, however only three are widely accepted: parental chromosomal abnormalities, APLA Syndrome and uterine anomalies. Parental chromosomal abnormalities account for only 2- 4% of recurrent losses. Balanced reciprocal translocations account for half of the chromosomal abnormalities (50%) Robertsonian translocations (25%) and X chromosome mosaicism – 47 XXY or Klinefelter Syndrome (12%).[61] Couple with an abnormal karyotype can be managed with IVF followed by pre implantation genetic diagnosis. Several genital tract abnormalities have been implicated in recurrent miscarriage.15% of women with three or more consecutive miscarriage will be found to have a congenital or acquired uterine anomaly (Deviwold et al, 2006). Of acquired anomalies uterine synechiae – Asherman syndrome usually results from destruction of large areas of endometrium. Uterine leiomyomas are found in

large proportion of adult women can cause miscarriage, especially if located near the placental implantation site. Congenital genital tract anomalies commonly originate from abnormal mullerian duct formation or abnormal fusion. The incidence is overall 1 in 200 women. Unicornuate, bicornuate and septate uteri are associated with recurrent pregnancy loss. Developmental anomalies were found in approximately 20% of women with recurrent pregnancy losses and 15% have recognised auto immune factors.[62] Miscarriages are more common in women with systemic lupus erythematosus. The APLA syndrome is defined by antiphospholipid antibodies formed together with various forms of reproductive losses along with increased risks for venous thromboembolism.[63] 8-12% of recurrent miscarriages are caused by endocrine factors. Examples are progesterone deficiency caused by luteal phase defect and polycystic ovarian syndrome. Overt hypothyroidism and severe iodine deficiency are well known for recurrent pregnancy loss.

INDUCED ABORTION

It is defined as medical or surgical termination of pregnancy before the time of viability.

Factor	Medical	Surgical
Invasive	Usually no	Yes
Pain	More	Less
Vaginal bleeding	Prolonged and unpredictable	Light, predictable
Incomplete abortion	More common	Uncommon
Failure rate	2-5%	1%
Severe bleeding	0.1%	0.1%
Infection rate	Low	Low
Anaesthesia	Usually none	Yes
Time involved	Multiple visits	Usually, one visit

Classification

Therapeutic Abortion:

Several diverse medical and surgical disorders that can adversely affect the condition of mother are the indicated cases for therapeutic abortion. Examples include persistent cardiac decompensation with fixed pulmonary hypertension: advanced hypertensive vascular disease, diabetes, malignancy. In cases of rape or incest most consider termination reasonable. The most common indication currently is a fetus detected with significant anatomical, metabolic or mental deformity.

Elective or Voluntary Abortion

The interruption of pregnancy before the age of viability at the request of woman without any medical reason is usually termed elective or voluntary abortion. Most abortion done today are elective and therefore it is the most commonly performed medical procedure. According to ACOG 2013 elective abortion is the legal right of woman and consider this as a medical matter between a woman and her physician.

HANDLING THE SITUATION

Techniques used for first trimester abortion
Surgical
Dilation and curettage
Vacuum aspiration
Menstrual aspiration

Medical
Prostaglandin E2, F2 alpha, and analogues via different routes
Antiprogesterones – RU-486 and epostane
Methotrexate – intramuscular and oral
Various combinations of the above

Comparison of some advantages and drawbacks of medical versus surgical abortion

SURGICAL ABORTION:

Surgical pregnancy termination includes a trans vaginal approach. Cervix should be properly prepared and dilated. Sometimes in complicated cases, laparotomy with either hysterotomy or hysterectomy may be needed.[64]

Different techniques for cervical preparation

Patient should be counselled about the possible risks and effects on future pregnancies.

Dilatation and Curettage

Transcervical approach by dilating the cervix medically or mechanically and curetting the uterine cavity to evacuate the pregnancy is done in dilatation and curettage. Curettage; either blunt or suction is recommended below 15 weeks. Complications increase after 1st trimester. Perforations, cervical laceration, infection, haemorrhages are major complications.[65]

Dilatation and Evacuation

This procedure is mainly followed when pregnancy is 16 weeks or more. Wide mechanical dilatation of cervix is achieved with metallic or hygroscopic dilator. Fetal parts are destructed and evacuated. A large bore vacuum curette is used to remove the placenta and remaining tissue after complete removal of fetus.

Dilatation and Extraction

This is similar to dilatation and evacuation except that a suction cannula is used to evacuate the intracranial contents after the delivery of the fetal parts through the dilated cervix. This procedure has been termed as partial birth abortion.

Menstrual Aspiration

This is done within 1-3 weeks after a missed menstrual period and with a positive pregnancy test result. This procedure is done by 5- or 6-mm flexible plastic Karman's cannula. This procedure is also known as menstrual induction, instant period, traumatic abortion or mini abortion. Despite the chances of missing the products it has 98% success rate.[66]

Manual Vacuum aspiration

This procedure is similar to menstrual aspiration and can be used for elective termination upto 12 weeks. It can also be used as an office procedure below 10 weeks because blood loss rises sharply between 10 and 12 weeks.[67] For pregnancy less than 8 weeks cervical ripening is usually not necessary. This technique needs a 60 ml hand operated syringe and cannula. Thevacuume produces up to 60 mm hg suction.

Hysterotomy or Hysterectomy

In case of 2nd trimester pregnancy, abortion may need hysterotomy and tubal ligation can be done in the same sitting. Sometimes hysterectomy is needed due to presence of some uterine diseases.

Medical Abortion

According to ACOG outpatient medical abortion is an acceptable alternative when pregnancy is less than 49 days of menstrual age. After this time support urgical abortion is preferable. Regimens for medical termination of early pregnancy are Mifepristone, 100- 600 mcg orally followed by Misoprostol, 200-600 mcg orally or 400-800 mcg vaginally, buccally or sublingually given immediately or up to 72 hours. It can also be performed by Methotrexate 50 mcg/ m^2 BSA intramuscularly or orally followed by Misoprostol 800 mcg vaginally in 3-7 days and can be repeated 1 week after methotrexate initially given if needed. 800 mcg Misoprostol vaginally or sublingually alone can be used and can be repeated for up to three doses.[68-70]

Complications associated with medical termination are excessive bleeding and cramping.

Midtrimester Abortion

Termination of pregnancy in 2nd trimester can be performed either by surgical or medical methods. But all the procedures are aided by pre-treatment using hygroscopic cervical dilators.

Surgical techniques

Any of the surgical methods used for termination in 1st trimester such as dilatation and curettage, dilatation and evacuation, dilatation and extraction, laparotomy, hysterotomy and hysterectomy can be used for induced abortion in second trimester.

Medical methods

These include intravenous oxytocin delivered in an isotonic solution which if used in high doses will result in second trimester abortion 80 to 90 percent of cases. Intraamniotic hyperosmotic fluid such as 20% saline and 30% urea can be used. A 20 mg prostaglandin E_2 suppository placed in the posterior vaginal fornix is an effective means of

inducing a second trimester abortion.

REFERENCES

Hull D, Davies G, Armour CM.Survey of the Definition of Fetal Viability and the Availability, Indications, and Decision Making Processes for Post-Viability Termination of Pregnancy for Fetal Abnormalities and Health Conditions in Canada.J Genet Couns 2016;25(3):543-51. doi: 10.1007/s10897-015-9907-8.

Reynolds-Wright JJ, Main P, Cameron ST.Accuracy of a point-of-care test for quantifying human chorionic gonadotrophin (hCG) in the management of pregnancy of unknown location in an abortion service.BMJ Sex Reprod Health 2019; Jan 13. pii: bmjsrh-2018-200166. doi: 10.1136/bmjsrh-2018-200166.

Carusi D. Pregnancy of unknown location: Evaluation and management.SeminPerinatol. 2018; Dec 20. pii: S0146-0005(18)30142-3. doi: 10.1053/j.semperi.2018.12.006.

MagroMalosso ER, Saccone G, Simonetti B, Squillante M, Berghella V.US trends in abortion and preterm birth.J MaternFetal Neonatal Med. 2018 Sep;31(18):2463-2467.

Datta MR, Raut A.Efficacy of first-trimester ultrasound parameters for prediction of early spontaneous abortion.Int J Gynaecol Obstet. 2017 Sep;138(3):325-330.

Sample registration bulletin .maternal mortality in india: 1997-2003. Trends , causes and risk factors. Registrar general india.

Paul M, Danielsson KG, Essén B, Allvin MK. The importance of considering the evidence in the MTP 2014 Amendment debate in India - unsubstantiated arguments should not impede improved access to safe abortion.Glob Health Action. 2015 Mar 30;8:27512.

Government of Pakistan. The First Ordinance of the Qisas and Diyat Law. Islamabad, Pakistan: Ministry of Law, Justice and Parliamentary Affairs (Law and Justice Division); 1990.

Siddique S, Hafeez M.Demographic and clinical profile of patients with complicated unsafe abortion.J Coll Physicians Surg Pak. 2007 Apr; 17(4):203-6.

Saleem S, Fikree FF. The quest for small family size among Pakistani women--is voluntary termination of pregnancy a matter of choice or necessity? J Pak Med Assoc. 2005 Jul; 55(7):288-91.

Khan A. Induced abortion in Pakistan: community-based research.J Pak Med Assoc. 2013 Apr; 63(4 Suppl 3):S27-32

Ahmad R. Attitude towards induced abortion in Bangladesh. Bangladesh Dev Stud. 1979;7(4):97-108.

NIPORT, Mitra and Associates, and ORC Macro, Bangladesh Demographic and Health Survey, 1999–2000, Dhaka, Bangladesh: NIPORT and Mitra and Associates; and Calverton, MD, USA: ORC Macro, 2001.

Unpublished data from Bangladesh Association for Prevention of Septic Abortion (BAPSA), Dhaka, Bangladesh, 2012.

Bangladesh Bureau of Statistics (BBS), Report of the Household Income and Expenditure Survey, 2010, Dhaka: BBS, 2012.

Huda F et al., Strengthening Health System Capacity to Monitor and Evaluate Programmes Targeted at Reducing Abortion-Related Maternal Mortality, Dhaka: International Centre for Diarrhoeal Disease Research, Bangladesh, 2010.

NIPORT, Bangladesh Maternal Mortality and Health Care Survey 2010: Summary of Key Findings and Implications, Dhaka, Bangladesh: NIPORT, 2011.

Singh S et al., Estimating the level of abortion in the Philippines and Bangladesh, International Family Planning Perspectives, 1997, 23(3): 100–107 & 144.

Sedgh G, Guttmacher Institute, New York, personal communication, Apr. 26, 2012.

Nepal Ministry of Health. National Safe Abortion Policy.Kathmandu, Nepal: Ministry of Health; 2002.http://www.mohp.gov.np/images/pdf/policy/National%20abortion%2, accessed on 22.2.19.

Thapa PJ, Thapa S, Shrestha N. A hospital-based study of abortion in Nepal. Studies in Family Planning. 1992;23(5):311–318.

Samandari G, et al. Implementation of legal abortion in Nepal: a model for rapid scale-up of high-quality care. Reproductive Health. 2012;9:7. doi: 10.1186/1742-4755-9-7.

Thapa S, Sharma SK, Khatiwada N. Women's knowledge of abortion law and availability of services in Nepal. Journal of Biosocial Science. 2014;46(2):266–277.

Ministry of Health and Population, New ERA and ICF International. Nepal Demographic and Health Survey 2011. Kathmandu, Nepal: Ministry of Health and Population and New ERA; Calverton, MD, USA: ICF International; 2012.

Henderson JT, et al. Effects of abortion legalization in Nepal, 2001–2010. PLoS One. 2013;8(5):e64775. doi: 10.1371/journal.pone.0064775.
Senanayake L, Willatgamuwa S, Moonasinghe L, Tissera S. Unwanted / Unplanned pregnancies and their aftermath. Colombo: The Family Planning Association of Sri Lanka in collaboration with the College of General Practitioners of Sri Lanka, 2012.
Sri Lanka Penal Code Section 303. University of Menesota,1883.
http://www1.umn.edu/humanrts/research/srilanka/statutes/Penal_Code.pdf (accessed on Feb 22, 2019).
De Silva IW. The Practice of Induced Abortion in Sri Lanka. Harword School of Public Health, 1997.
Rajapakshe LC. Estimates of Induced Abortion using RRT Technique. Colombo, 2000.
Godakanda S. Regional Workshop on FIGO initiative on unsafe abortion. International Federation of Gynecology and Obstetrics (FIGO). Mumbai, 2016.
Nasratullah A et al. Assessing Post-Abortion Care in Health Facilities in Afghanistan: A Cross-Sectional Study. BMC Pregnancy and Childbirth2015; 15 (1): 1–9.
Bulletin of the World Health Organization. Infant and under-five mortality in Afghanistan: current estimates and limitations. https://www.who.int/bulletin/volumes/88/8/09-068957/en/ (accessed on Feb 22, 2019).
The Maldives Study on Women's Health and Life Experiences, 2007, Ministry of Gender and Family, Maldives/UNFPA/UNICEF/WHO
The Reproductive Health Baseline Survey, Ministry of Health, Maldives/UNFPA, 1999.
Peldon S. Should abortion be legalized? Bhutan Observer 2011.
Ministry of Health 2008. Adolescent Health and Development, A country profile. Ministry of Health, Thimphu, Bhutan.
MoH (2011) Annual Health Bulletin 2010. Thimphu: Minstry of Health, Royal Goverment of Bhutan.
Choden J, Pem R, Pathak A. Prevalence, determinants and outcomes of unplanned pregnancy and perspectives on termination of pregnancy among women in Nganglam, Bhutan. Bhutan Health Journal 2015;1: 30-37.
Eddleman K, Sullivan L, Stone J, et al: An individualised risk for spontaneous pregnancy loss:A risk function model. J SocGynaecol investing 13:197A, 2006.
Tongsong T, SrisomboonJ ,Wananpirak C et al: Pregnancy outcome of threatened abortion with demonstrable fetal cardiac activity: A cohort study. J ObstetGyaenocol 21:331, 1995.
Casikar I, Bignardi T, Riemke J, AlhamdanD, Condous G, .expectant management of spontaneous first trimester miscarriage. : Prospective validation of the '2 week rule' .ultrasoundobstet gynaecol2010 feb; 35 (2):223-227.
Ngoc NT, Blum J, Westheimer E, Quan TT, Winikoff B, .medical treatment of missed abortion using misoprostol. Int J Gynaecolobstet 2004 nov; 87(2): 138-42.
Tanha FD, Feizi M, Shariat M. sublingual vs vaginal misoprostol for the management of missed abortion. J Obstetgynaecol Res 2010jun; 36 (3) : 525-32.
Gronlund A, Gronlund L, Clevin L, Andersen B, Palmgren N, Lidegaard O. management of missed abortion: comparison of medical treatment with either mifepristone+misoprostol or misoprostol alonewith surgical evacuation. A multi-center trial in copenhegen county, Denmark.Actaobstetgynaecolscand 2002 nov;81(11) :L 1060 – 65
Manesha J, Levy B, Hirschhorn K, Kardon NB. Incidence and spectrum of chromosome abnormalities in spontaneous abortions : new insight from a 12 –year study. Genet Med 2005 apr; 7 (4).
Lathi RB, Gray Hazard FK,Heerema- Mckenny A, Tylor J, ChuehJT,. First trimestermiscarrige evaluation.Seminreprod med 2011 Nov; 29 (6) 463-65.
Hogge WA, Byrnes AL, Lanasa MC, Surti U. the clinical use of karyotyping spontaneous abortions. Am J ObstetGynecol 2003; 189(2):397-400.
Rollins MD, Chan KJ, Price RR. Laparoscopy for appendicitis and cholelithiasis during pregnancy. A new standard of care .surg endo2004 feb; 18(2) 237-41.
Rizzo AG. Laparoscopic surgeries in pregnancy: long term follow up..jlaparoendoadvsurg tech a 2003 feb ; 13(1): 11-15.
JarvieE,Ramsay JE: obstetric management of obesity in pregnancy. SeminFetal neonatal med 2010;15(2):83.
SatpathayHK,Fleming, Frey D, et al:maternal obesity and pregnancy. Post grad med

2008;120(3):E01.
Floyd RL, Decoufle P, Hungerford DW; Alcohol use prior to pregnancy recognition.Am J Prev med 17: 101.
Ctov JM, Nohr EA, Olsen J, et al: chronic hypertension related to risk for pre term and term small for gestational age birth. Obstetgynaecol 2008;112(21) :290.
Canattingius S, Signorello B,Anneren G, et al:caffeine intake and the risk of first trimester spontaneous abortion. N Engl J med 2000;343:1839.
Barlow S, Sullivan FM: reproductive hazards of industrial chemical:andevaluatin of animal and human data. Newyork, Academic press1982.
Eskenazi B,CHevrier J, R OsasLG,etal:the pine river statement:human health consequences of DDT use. Environ health prospect 2009; 117(9):1359.
SchnorrTM,Grajewski BA, HornungRW,et al: video display terminals and the risk of spontaneous abortion. N Engl J med 1991;324:727.
ErkanD,KozoraE,LockshinMD:cognitivedisfunctio n and white matter abnormalities in antiohospholipid syndrome. Pathophysiology 2011; 18(1):93.
KleinhausK,PerrinM,Friedlander Y et al: Paternal age and spontaneous abortion. ObstetGyaencolo 2006;108:369.
The investigation and treatment of couples with recurrent first trimester and second trimester abortion, RCOG GTG no 17, march 2011, RCOG , UK.
Page JM, Silver RM. Genetic Causes of Recurrent Pregnancy Loss.
Clin Obstet Gynecol. 2016 Sep;59(3):498-508. doi: 10.1097/GRF.0000000000000217.
Bhagavath B, Ellie G, Griffiths KM, Winter T, Alur-Gupta S, Richardson C, Lindheim SR. Uterine Malformations: An Update of Diagnosis, Management, and Outcomes. Obstet Gynecol Surv. 2017 Jun;72(6):377-392.
Sugiura-Ogasawara M, Ebara T, Matsuki T, Yamada Y, Omori T, Matsumoto Y, Kato S, Kano H, Kurihara T, Saitoh S, Kamijima M; and the Japan Environment & Children's Study (JECS) Group. Endometriosis and Recurrent Pregnancy Loss as New Risk Factors for Venous Thromboembolism during Pregnancy and Post-Partum: The JECS Birth Cohort. Thromb Haemost. 2019 Feb 5. doi: 10.1055/s-0039-1677733.
Ikeanyi ME, Okonkwo CA. Complicated illegal induced abortions at a tertiary health institution in Nigeria. Pak J Med Sci. 2014;30(6):1398-402.
Madziyire MG, Polis CB, Riley T, Sully EA, Owolabi O, Chipato T. Severity and management of postabortion complications among women in Zimbabwe, 2016: a cross-sectional study. BMJ Open. 2018;8(2):e019658. Published 2018 Feb 10. doi:10.1136/bmjopen-2017-019658.
Sun L, Yu Y, Qi X. Short-term Effects of Catheter Pressure and Time Control in Vacuum Aspiration Abortion for Early High-risk Pregnancies. Iran J Public Health. 2017;46(5):634-639.
Odland ML, Membe-Gadama G, Kafulafula U, Jacobsen GW, Kumwenda J, Darj E. The Use of Manual Vacuum Aspiration in the Treatment of Incomplete Abortions: A Descriptive Study from Three Public Hospitals in Malawi. Int J Environ Res Public Health. 2018;15(2):370. Published 2018 Feb 21. doi:10.3390/ijerph15020370.
Agrawal S. The sociocultural context of family size preference, ideal sex composition, and induced abortion in India: findings from India's National Family Health surveys. Health Care Women Int. 2012;33(11):986-1019.
Dastgiri S, Yoosefian M, Garjani M, Kalankesh LR. Induced Abortion: a Systematic Review and Meta-analysis. Mater Sociomed. 2017;29(1):58-67.
Rehnström Loi U, Lindgren M, Faxelid E, Oguttu M, Klingberg-Allvin M. Decision-making preceding induced abortion: a qualitative study of women's experiences in Kisumu, Kenya. Reprod Health. 2018;15(1):166. Published 2018 Oct 3. doi:10.1186/s12978-018-0612-6.
Niinimäki M, Mentula M, Jahangiri R, Männistö J, Haverinen A, Heikinheimo O. Medical treatment of second-trimester fetal miscarriage; A retrospective analysis. PLoS One. 2017;12(7):e0182198. Published 2017 Jul 28. doi:10.1371/journal.pone.0182198

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Case Report

UTERINE INVERSION- AN OBSTETRICIAN'S NIGHTMARE

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ABSTRACT

Puerperal acute inversion of uterus is a rare obstetric condition observed as a serious complication during the third stage of labor. The mechanisms are not completely known. However, extrinsic factors such as umbilical cord traction or abdominal expression are important factors. Here we report two cases of uterine inversion which presented to our facility; first was a case of subacute uterine inversion and the second was a case of acute uterine inversion.

KEY WORDS: Inversion, Puerperal, Umbilical cord traction

INTRODUCTION

Puerperal inversion of the uterus is one of the classic hemorrhagic disasters encountered in obstetrics. Unless promptly recognized and managed appropriately, associated bleeding often is massive. Risk factors include alone or in combination: fundal placental implantation, uterine atony, cord traction applied before placental separation, abnormally adhered placentation such as with the accrete syndromes, fundal pressure for delivery of the baby[1,2,3,4]. Depending on the presence of the contributory factors, the incidence and severity of uterine inversion varies.

The first classification is according to the **delay between the delivery and the diagnosis of the uterine inversion:**

1) The acute inversions arising immediately or within 24 hours after delivery.
2) The subacute inversion occurring after the first 24 hours and within four weeks after delivery.
3) The chronic inversion arising after more than four weeks of the delivery[5].

The prevalence of each class of inversion is 83.4%, 2.62% and 13.9% respectively[6].

The second classification is according to **degrees** of uterine inversion.

1) First degree- the fundus inverts but does not herniate through the level of the internal os.
2) Second degree the fundus passes through the cervix and lies within the vagina.
3) Third degree the entire uterus is turned inside out and hangs outside the vulva.

Complications are shock, puerperal sepsis, anuria and Sheehan's syndrome. If untreated, mortality can be high. The incidence of uterine inversion ranges from 1 in 2000 to 1 in 20,000 vaginal deliveries.[7,8,9].

CASE 1:

Mrs XX, 33 years old female married for13 years, (P6L5) with once post LSCS followed by 5 VBAC came in emergency with history of home delivery attended by traditional birth attendant one day prior to with complains of urine retention and something coming out per vagina. A diagnosis of

subacute uterine inversion with anemia in shock was made and resuscitation was performed. She was started on intravenous broad-spectrum antibiotics and immediately shifted to OT. Vaginal reposition of the inverted uterus was tried under GA but it was unsuccessful. Then we proceeded to do laparotomy and the cervical ring was identified and incision was given over the cervical ring anteriorly after pushing the bladder (Ocejo method). Manually uterine fundus was pushed up per vaginum. Reposition of the uterus was successful. Incision was then sutured in double layers and subsequently uterotonic were given. Bilateral tubal ligation was done using modified Pomeroy's method, hemostasis was achieved and abdomen was closed in layers. The patient received 3 units of blood and on post-operative day 8 discharged in hemodynamically stable condition.

CASE 2:

The patient is 25-years-old, P3L3, once post LSCS. She had a VBAC delivery at a local PHC, immediately post-delivery patient had PPH which was managed conservatively but vitals were deteriorating, hence was referred to our facility for further management. On general examination patient was conscious but agitated, gasping for air and was severely pale. The vitals were not recordable, fluid resuscitation was done and immediate cross match was sent. Per abdomen, fundus was not palpable and on pelvic examination revealed a polypoidal red mass protruding in the vagina and there was no active bleeding. The placenta was not attached and the mass was not edematous. The perineum was intact. Patient was started on broad-spectrum antibiotic therapy and was shifted to OT for repositioning. A manual reduction was attempted under aseptic conditions in the OT, the patient was placed in the lithotomy position and the prolapsed uterus was manually replaced into the vagina and then carefully reduced into the abdomen by gently pressing first on that part of the corpus which was inverted last, followed by the fundus through the dilated cervix. A hand placed on the lower abdomen anteriorly elevated the uterus into the abdomen. Uterotonics were started, high dose oxytocin along with methergine. Intra- operatively, she was started on ionotropic agents and 2 units of blood were transfused. Oxytocin infusion was maintained for 24 hours. She was transfused a total of four units of blood. She made uneventful recovery and was discharged home on oral antibiotics, hematinic and advised on contraception and the need for adequate antenatal care and hospital delivery in case she conceives.

DISCUSSION

The diagnosis of the puerperal uterine inversion is mainly clinical. It is based on three elements: hemorrhage, shock and a strong pelvic pain[10,11]. The hemorrhage strength is directly connected to the inversion duration. The bleeding is massive in more than 70% of cases and the shock is the most constant sign[12,13].

Proper education and training regarding active management of third stage of labour, diagnosis and management of uterine inversion should be imparted to traditional birth attendants, so that this potentially life-threatening obstetric emergency could be averted.

Uterine inversion is an uncommon but potentially life-threatening obstetric emergency. Once diagnosed, an attempt is made to replace the uterus manually repositioning without removing the placenta, if separation has not yet occurred[14]. Otherwise, the patient is liable to bleed excessively, which could precipitate shock[15]. If manual reduction fails, then employing the use of hydrostatic replacement or O'Sullivan's technique would be the next approach. If uterine inversion has persisted despite non-surgical approaches, then surgery will usually be required.

The surgical approach can be done by laparotomy or laparoscopy. Huntington´s surgical method clamps the round ligaments below the depression, formed by the inverted uterus and tractions them until all the inversion is corrected[16,17]. Obstetric suction cups can be used in abdominal corrections instead of clamps, as shown by Antonelli, in order to be less harmful to the round ligaments during traction[18]. If it fails, the Haultain technique can be tried, which performs a longitudinal hysterotomy in the posterior portion of the median uterine wall, inferior, of 5-6 cm, reaching the inversion cervical

ring, which facilitates disinvagination[16,17]. If the incision is made in the anterior wall, it is called Ocejo method.[16,17,19].

Laparotomy has the advantage of easy conversion to hysterectomy, but it is a procedure that requires a large incision, which generates greater postoperative pain and consequently longer hospitalization[20]. Besides that, the risk of adhesions is much higher, which can complicate in subsequent pregnancies due to the increased risk of uterine rupture[19]. The laparoscopic approach requires more infrastructure, surgical experience and hemodynamic stability of the patient, but with minimal trauma, and has a more favorable postoperative with fewer complications and less pain[20].
Vaginal procedures include Spinelli´s and Kustner´s technique and are used mainly in non-puerperal conditions[16,21,18,19].

In our case patient had home delivery without proper management of third stage of labour. Treatments may be reduced if the patient is rescued promptly by a qualified team of paramedics with knowledge of the third stage of labor.
In our case Johnson's maneuver, was attempted but failed, due to the congestion and edema and thus we proceeded to do a laparotomy and attempted the Ocejo method. After repositioning of the uterus administration of uterotonic agents (oxytocin or misoprostol) is essential to prevent recurrence. Broad spectrum antibiotic prescription is also recommended to prevent endometritis or sepsis.

CONCLUSION

In a country like India where home deliveries are still very common, though institutional deliveries should be encouraged, due to varies logistically problems birth should be assisted by trained birth attendants or dais. Proper ante natal follow up, recognition of high-risk cases, proper contraceptive methods in multi-gravidas should also be encouraged.
Most important thing is the proper management of this obstetric emergency is rapid recognition and prompt attempts of resuscitation and reposition of inverted uterus either vaginal route or by surgical methods can save the life of the woman.
In some of the cases, surgical correction via a laparotomy may be needed which we have done after the failed attempt of reposition by vaginal route. It is essential to keep in mind this diagnosis in all cases of postpartum hemorrhage, and be updated about the medical therapy and surgical techniques required to solve this type of complication.

REFERENCES

[1] Thoulon JM, Heritier Ph, Muguet D, Spiers C, Lebrat J, Dumont M. L'inversion uterine. Rev Fr Gynecol Obstet. 1980;75:321–6.
[2] Watson P, Besch N, Bowes WA Jr Obstet Gynecol. 1980 Jan; 55(1):12-6.

[3] Shah-Hosseini R, Evrard JR Obstet Gynecol. 1989 Apr; 73(4):567-70.
[4] Pessonnier A, Ko-Kivok-Yun P, Reme JM Rev Fr Gynecol Obstet. 1995 Jul-Sep; 90(7-9):362-6.
[5] Wendel PJ, Cox SM. Emergent Obstetric management of uterine inversion. Obstet Gynecol Clin North Am. 1995;22:261–74.
[6] Dali SM, Rajbhandadari S, Shrestha S. Puerperal inversion of the uterus in Nepal: case reports and review of literature. J Obstet Gynaecol Res. 1997;23:319–25.
[7] Coad S, Dahlgren L, Hutcheson JA: Risk and consequences of puerperal uterine inversion in the United States, 2004–2013. Am J Obstet Gynecol 217:377, 2017
[8] Ogah K, Munjuluri N: Complete uterine inversion after vaginal delivery. J Obstet Gynaecol 31(3):265, 2011
[9] Witteveen T, van Stralen G, Zwart J, et al: Puerperal uterine inversion in the Netherlands: a nationwide cohort study. Acta Obstet Gynecol Scand 92(3):334, 2013
[10] Wendel PJ, Cox SM Obstet Gynecol Clin North Am. 1995 Jun; 22(2):261-74.
[11] Lago JD Am J Emerg Med. 1991 May; 9(3):239-42.
[12] Chambrier C, Zayneh E, Pouyau A, Pacome JP, Boulétreau P Ann Fr Anesth Reanim. 1991; 10(1):81-3.
[13] Miras T, Collet F, Seffert P J Gynecol Obstet Biol Reprod (Paris). 2002 Nov; 31(7):668-71.

[14] Brar HS, Greenspoon JS, Platt LD, Paul RH.

Acute puerperal uterine inversion. New Approaches to Management. J Repro Med 1989;34:173–7.
[15] Kochenour NK. Intrapartum obstetric emergencies. Crit Care Clin 1991; 7:851-864
[16] Neves J, Cardoso E, Araújo C, Santo S, Gonçalves P, et al. Inversão uterina. 2006; 19: 181-184
[17] Zugaib M. Zugaib Obstetrícia. Barueri(SP). Editora Manole. 2020; 1406.
[18] Antonelli E, Irion O, Tolck P, Morales M. Subacute uterine inversion: description of a novel replacement technique using the obstetric ventouse. BJOG. 2006; 113: 846-847. Senior Consultant, Department of Obstetrics and Gynecology, Nazareth Hospital, Shillong, Meghalaya, India.
[19] Sardeshpande NS, Sawant RM, Sardeshpande SN, Sabnis SD. Laparoscopic correction of chronic uterine inversion. J Minim Invasive Gynecol. 2009; 16: 646-648.
[20] Shepherd LJ, Shenassa H, Singh SS. Laparoscopic management of uterine inversion. J Minim Invasive Gynecol. 2010; 17: 255-257.
[21] Ida A, Ito K, Kubota Y, Nosaka M, Kato H, et al. Successful Reduction of Acute Puerperal Uterine Inversion with the Use of a Bakri Postpartum Balloon. Case Rep Obstetr Gynecol. 2015; 2015: 1-5

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Case Report

COVID-19 POSITIVE SYMPTOMATIC NEWBORN IN A LEVEL II NEWBORN CARE UNIT

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ABSTRACT

Puerperal acute inversion of uterus is a rare obstetric condition observed as a serious complication during the third stage of labor. The mechanisms are not completely known. However, extrinsic factors such as umbilical cord traction or abdominal expression are important factors. Here we report two cases of uterine inversion which presented to our facility; first was a case of subacute uterine inversion and the second was a case of acute uterine inversion.

KEY WORDS: COVID-19, Critically ill, Newborn

INTRODUCTION

When the COVID-19 pandemic was first reported in a market place in Wuhan, China and spread throughout the globe,[1] paediatricians were grateful that children seemed to be only mildly symptomatic with the infection in most cases.[2] Children appear to have less severe pulmonary manifestations compared to adults, possibly due to lower gene expression of the angiotensin converting enzyme (ACE)-2 receptor (the target of SARS-CoV-2).[3, 4] The disease trajectory in Paediatric patients has good prognosis compared to adults. Studies done so far revealed that vertical transmission of SARS-CoV-2 in neonates is yet to be determined, either by normal vaginal delivery or caesarean section.[5] The clinical symptoms of neonates born to COVID19 positive mothers were variable and generally include fever, upper respiratory tract symptoms and gastrointestinal symptoms.[5] Premature birth was also reported in 50% of the reported studies.[5]

We report here a COVID-19 positive newborn with a stormy newborn period managed in level-II newborn care unit.[6]

THE CASE

A male newborn with birth weight 2.5 kg was admitted to Sick Newborn Care Unit of College of Medicine & JNM Hospital, WBUHS, Kalyani, Nadia, West Bengal, which is a level-II Newborn Care Unit on Day 4 of life with complaints of poor feeding and lethargy. The baby was delivered vaginal delivery and had an uneventful perinatal period. The baby was discharged with mother on day 2 of life from that hospital. On day 4 of life the baby refused to suck breast milk and was lethargic. Mother also developed fever on the same day. At the time of admission baby had hypoglycaemia with blood glucose level 18 mg/dl. After admission baby developed 2 episodes of convulsion. During convulsion blood glucose levels were more than 50mg/Dl. On next day mother's Rapid Antigen ICT for COVID-19 become positive and mother was transferred to Corona Designated Hospital

as she was symptomatic. On day 6, baby was tested for Rapid Antigen ICT for COVID-19 and report was positive. Few other family members were also become positive for Rapid Antigen test of Covid-19. From day 6, baby developed high grade fever with spike around 105F and hypoxia. His oxygen saturation was 84% to 88% in room air, though the baby has no signs of respiratory distress.

Baby's haemoglobin was 15.9 gm%, total WBC count 8,100/cmm with Neutrophil 60%, Lymphocyte 35%, Monocyte 3% and Eosinophils 2%, total platelet counts 1,30,000/cmm, Peripheral smear showed any Band cells or Toxic Granules. CRP was positive with value >1.2mg/dl, Procalcitonin level was >1.6ng/ml, serum sodium level was 134mEq/L, potassium level was normal, calcium level was normal, ferritin level was 650µg/Dl, Il-6 level was normal. Blood culture was negative. Chest X-Ray did not show any abnormality. CSF Study showed normal colour and pressure, no cell, mildly raised protein and normal sugar level. USG Brain and EEG showed no significant finding. Repeat Antigen test for COVID-19 after 7 days was also positive. Baby was managed with symptomatic management. On the day of admission Inj. Cefotaxime and Inj. Amikacine were started, hypoglycaemia was corrected, inj. Phenobarbitone was added for convulsion and later oxygen therapy was given for hypoxia. As mother and other care giver from family were admitted due to symptomatic COVID-19, baby was fed with artificial milk. Baby was kept single patient room. Baby was treated for 19 days in newborn care unit and discharged on day 23 of life. At the time of discharge baby's weight was 2.6kg. No medicine was given at discharge but baby was followed up at High-risk baby clinic.

DISCUSSION

Transmission of SARS-CoV-2 to newborn is thought to occur primarily through respiratory droplets during postnatal period when neonates are exposed to mothers or other care giver with COVID-19. Limited reports in the literature have raised concern of possible intrauterine, intrpartum or peripartum transmission, but the extent and clinical significance of vertical transmission, which appear to be rare, is unclear.[7] Our patient is symptomatic at day 4 of age and mother and other caregivers are positive of COVID-19, most possibly through post natal infection. One report mentioned 3 out of 33 newborns with positive nasopharyngeal and anal swabs on Day 2 and 4 of life.[8] One of the largest cohort studies in US reported that newborn to SARS-CoV-2 positive mother did not develop symptoms of COVID-19.[9] Few newborns may present with fever, sneezing, diarrhoea, vomiting and premature birth. But our patient is a term baby with adequate birth weight. He had two uncommon presentations – hypoglycaemia and convulsions. The convulsion was not due to sepsis or meningitis as sepsis screening, blood culture was negative and CSF Study showed only raised protein level. Convulsions were not due to hypoglycaemia as at the time of convulsion blood glucose levels were normal. He had also hypoxia which is also uncommon in newborns. He had no upper respiratory tract or G.I. symptoms. Among baseline laboratory findings there are mild decrease in platelet count and mild increase in CRP level. Following the guideline of management of SARS-CoV-2 positive newborn,[10] we kept the patient in single patient room but negative room pressure was not available.

Conclusion: COVID 19 in newborn though uncommon but it may affect vital organs. It may have impact on developing brain.

REFERENCES

1. Das SK, The pathophysiology, diagnosis and treatment of corona virus disease 2019 (COVID-19). Indian J Clin Biochem 2020; 35: 385-96.

2. Rowley AH. Understanding SARS-CoV-2-related multisystem inflammatory syndrome in children. Nat Rev Immunol 2020; 20(8): 453-54.

3. Rawat M, Chandrasekharan P, Hicar MD, Lakshminrusimha S. COVID-19 in newborns and infants-low risk of severe disease: silver lining or dark cloud? Am J Perinatol 2020; 37(8): 845-49.

4. Bunyavanich S, Do A, Vicencio A. Nasal gene expression of angiotensin-converting enzyme 2 in children and adults. JAMA 2020; 323(23): 2427-29.

5. Mustafa NM, Selim LA. Characterisation of COVID-19 pandemic in paediatric age group:

A systematic review and meta-analysis. J Clin Virol 2020;128:104395.
6. American Academy of Pediatrics Committee on Fetus and Newborn. Levels of neonatal care. Pediatrics 2012; 130(3): 587-97.
7. Evaluation and Management Considerations for Neonates At Risk for COVID-19. https://www.cdc.gov/coronavirus/2019-ncov/hcp/caring-for-newborns.html (accessed on October 11, 2020)
8. Zeng L, Xia S, Yuan W, Yan K, Xiao F, Shao J, et al. Neonatal early-onset infection with SARS-CoV-2 in 33 neonates born to mothers with COVID-19 in Wuhan, China. JAMA Pediatr 2020;174(7):722-25.
9. Salvatore CM, Han JY, Acker KP, Tiwari P, Jin J, Brandler M, et al. Neonatal management and outcomes during the COVID-19 pandemic: an observation cohort study. Lancet Child Adolesc Health 2020; 4(10):721-27.
10. Puopolo KM, Hudak ML, Kimberlin DW, Cummings J. Initial Guidance: Management of Infants born to Mothers with COVID-19. 2020 Apr 2. https://downloads.aap.org/AAP/PDF/COVID%2019%20Initial%20Newborn%20Guida.... Accessed Apr 2, 2020.

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1. Frederick J, Fletcher H, Simeon D, Mullings A, Hardie M. Intramyometrial vasopressin as a haemostatic agent during myomectomy. *Br J Obstet Gynaecol* 1994; 101(5):435-7.

BOOK

2. Shaw RW, Soutter WP, Stanton SL (eds) *Gynaecology*, 3rd edn. Philadelphia: Churchill Livingstone, 2003.

CHAPTER IN A BOOK

3. Menefeee SA, Wall LL. Incontinence, prolapse, and disorders of the pelvic floor. In: Berek JS (eds) *Novak's Gynecology*, 13th edn. Philadelphia: Lippincott Williams & Wilkins, 2002; p 645-710.

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