

OBSTETRICAL EMERGENCY: A CLUSTER OF LIFE THREATENING SITUATION

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Abstract: Obstetrical emergency is a life – threatening situation for both the mother and the fetus during pregnancy, during labour and after birth. Obstetric emergencies can occur suddenly and unexpectedly they are associated with adverse effect to maternal and perinatal outcome. Early identification of high risk pregnancies can reduce the obstetric emergencies .It occurred more frequently during antenatal period (52%) than intranatal (32%) or postnatal period (16%). Early diagnosis for any kind of possible complication during pregnancy, labour and after birth may lead to good prognosis for both mother and baby. In obstetrical emergency situations, optimal management requires the immediate coordinated actions of a multi-disciplinary and multi-professional team. In order to manage obstetric emergencies there should be multiple skilled attendants covering 24 hours a day, seven days a week, assisted by trained support staff and for managing surgical related complication there should be functional operating theatre, with more support staff and they must be able to administer safe blood transfusions and anaesthesia.

Key Words: Obstetrical Emergency, shoulder dystocia, placenta accreta, amniotic fluid embolism, inversion of uterus.

INTRODUCTION:

Obstetrical emergency is a serious medical condition which may lead to life – threatening situation of both the mother and the fetus. There are various diseases which affect the life and health condition of the mother and the fetus. The diseases or the illness may be present before the pregnancy or may have developed during the time of pregnancy. Complications related to pregnancy and childbirth is among the leading causes of mortality and morbidity of women of reproductive age in many parts of the developing world. Most of these deaths, health problems and injuries are preventable through improved access to adequate health-care services, including safe and effective family planning methods and emergency obstetric care. If proper prenatal and antenatal check up is not done than serious complications may occur during and after pregnancy. Such complications are collectively called as the obstetrical emergency. Timely intervention can prevent such complication. The prevention for obstetrical emergency is to do a regular prenatal and antenatal care which includes well balanced diet and other supplements (vitamins, iron & folic acid, calcium etc...); this will help to maintain the health condition of the mother and the fetus. Obstetrical emergency can also occur due to various factors like stress, previous bad obstetrical history, trauma, bad habits (smoking, alcohol, drugs etc...), genetics, and low socioeconomic status, family problems which led to lack of support and care from the husband and family members. So, to protect the mother and fetus from any complication proper management should be provided and in order to manage, the hospital should have multiple skilled attendants covering 24 hours a day, seven days a week, assisted by trained support staff. For managing surgical related complication there should be functional operating theatre, with more support staff, they must be able to administer safe blood transfusions and anaesthesia. Pregnancy is a period where we need to keep the mother mentally happy and physically fit which in turn help to deliver a healthy baby with no complication. A study was conducted on review of maternal and fetal outcome in obstetric emergencies. Result shows that Obstetric emergencies occurred more frequently during antenatal period (52%) than intra (32% or postnatal period (16%) and concluded that early registration, regular antenatal visits, early identification and timely referral of high risk pregnancies can reduce the incidence of obstetric emergencies [1]. Inappropriate management during obstetrical emergencies can result in substantial

maternal and neonatal mortality and serious morbidity, and the long term consequences of perinatal asphyxia on the child and the family can be catastrophic. So it is needed to train the health personnel especially in the labour ward to manage properly and to provide immediate interventions during such emergencies. A study was conducted on systematic review of training in acute obstetric emergencies. The objective of this study is to describe the models used for the training of labour ward personnel in acute obstetric emergencies and to describe how these models have been evaluated and compared. The study concluded that few training programmes have been described, and even fewer have been evaluated and found that the Training methods need to be developed, described and evaluated further and for this important intervention is urgently required[2]. Early diagnosis for any kind of possible complication during labour may lead to good prognosis for both mother and baby. Due to some obstetrical emergency chances for low birth delivery at around 28 weeks and younger is very high which will lead to perinatal complication but nowadays with the advances in neonatal care approximately 85% of the low birth weight baby survive. Even though still preterm infants sometime developed serious medical problems and disabilities occur in 25% in their future life. A study was conducted on optimization of competency in obstetrical emergencies through simulation training The purpose of the study is to investigate the influence of simulation training on four specific skills: self-confidence, handling of emergency situation, knowledge of algorithms and team communication. The study concluded that Implementation of simulation training strengthens the professional competency [3].

Obstetric emergencies can occur suddenly and unexpectedly which have an adverse effect to maternal and perinatal outcome. Early identification of high risk pregnancies can reduce the obstetric emergencies. Complications may occur during pregnancy, labor and after birth of the baby (puerperium) -

A) Obstetrical emergency that occurs during pregnancy includes –

1) Antepartum haemorrhage (placenta praevia and abruptio placenta) – it is the bleeding that occurs from or into the genital tract before the birth of the baby. The commonest cause is the placental bleeding. There are two types of placental bleeding a) placenta praevia – it is a condition in which the placenta is implanted in the lower segment of the uterus, bleeding likely occurs due to the slow growth of the placenta in the later months as there is progressive dilatation of the lower segment and since the placenta is inelastic it started to shear off from the uterine wall which will lead to opening of the uterine – placental vessels causing bleeding. b) abruptio placenta – it is the premature separation of the placenta. This condition will lead to shock, premature labour, cord prolapsed, low birth weight baby, neonatal asphyxia, intrauterine death and birth injury. A study was conducted on causes and effect of Antepartum Haemorrhage on Mother and Child. The main aim of the study was to find the demographic profile, type of APH, maternal and perinatal complications. The study concluded that there is very high maternal and perinatal morbidity and perinatal mortality in APH [4].

2) Abortion (threatened, inevitable, incomplete, missed and septic abortion) – abortion is the expulsion or extraction of the embryo or the fetus from the mother's womb weighing 500gm or less. It mainly occurs approximately at around 22 weeks of gestation. There are varieties of abortion which includes- a) threatened abortion – in this the process of abortion has started but with the proper management the pregnancy can be continued. The mother will have vaginal bleeding and pain. b) Inevitable abortion – it is a condition in which the pregnancy cannot be continued. c) Incomplete abortion – in this the product of conception is not able to be expelled out entirely; instead a part of it is left inside the uterine cavity. d) Missed abortion – the fetus is dead and remained inside the uterus for a variable period which when unnoticed. e) Septic abortion – if the abortion is associated with infection of the uterus and its contents. This will lead to complications like severe infection, bleeding and loss of pregnancy.

3) Ectopic pregnancy – it is a condition in which the fertilized ovum is implanted and develops outside the normal uterine cavity. It may occur - a) intra – uterine which includes cervical, angular and cornual, b) extra – uterine which includes any part of the fallopian tube which is the commonest, ovarian and abdominal. It will cause rupture of the fallopian tube followed by infection and severe abdominal pain on the side where the implantation occurs.

4) Pre-eclampsia and eclampsia – pre-eclampsia is a multisystem disorder of unknown etiology with increased blood pressure to the extent of 140/90 mm of Hg or more with proteinuria in a previously normotensive and non-proteinuric patient. When pre – eclampsia complicated with fits or convulsion is

called eclampsia. In this blood pressure will reach more than 160/110 mm of Hg. And this condition if severe lead to oliguria, anuria, and dimness of the vision, shock sepsis, intrauterine death, and prematurity, asphyxia, IUGR and preterm labour. A study was conducted on the topic “Mediators of the association between pre-eclampsia and cerebral palsy”. The objective of the study is to test the hypothesis that pre-eclampsia is a risk factor for cerebral palsy mediated through preterm birth and being born small for gestational age. The study concluded that exposure to pre-eclampsia was associated with an increased risk of cerebral palsy, and this association was mediated through the children being born preterm or small for gestational age, or both [5].

5) Premature rupture of membrane – it is the spontaneous rupture of the membrane anytime before 37 week of gestation. PROM causes one-third of all preterm births, and babies born preterm (before 37 weeks) can suffer from the complications of prematurity, including death.

6) Cervical incompetence – inability of the cervix to dilate normally inspite of good uterine contraction which will lead to prolong labour and obstructed labour is called cervical incompetence. This will cause Miscarriage, Premature Birth and Stillbirth

7) Decreased Fetal Movement – Fetal movement is usually felt by the mother at around 16th week by multigravida mother and around 18th week by primigravida mother it is also called as quickening. The movements of the fetus indicate the activeness of the fetus; this activeness can be sometime evaluated by the fetal kick count. If the mother felt 10 kick per day than its fine but in case if the movement is less than 10, it need to be check. Whenever a woman notes that the fetus is much less active than usual, this is a danger sign, and something that needs to be evaluated.

B) Obstetrical emergencies that occur during labor are –

1) Amniotic fluid embolism – it is a very rare complication of labor which will lead to fatal condition of the mother. In this the amniotic fluid embolised into the vein and then into the circulatory system of the mother, the cellular particles in the fluid block the pulmonary artery of the mother leading to heart attack.

2) Inversion – it is a condition in which the uterus will turn inside out. It mainly occurs due to pulling of the umbilical cord to remove the placenta. It will lead to excessive bleeding, shock and pain. Manual replacement should be attempted immediately before the development of a cervical ring and edema.

3) Rupture of uterus – it is the tear that occurs in the wall of the uterus, will cause infection and bleeding

4) Placenta accrete- usually the placenta implant in the lateral wall near the fundus of the uterus and mostly only in the endometrium layer. But in case of placenta accrete the placenta will be deeply implanted into the endometrium layer and sometime in most of the accrete cases it reach to myometrium layer making it difficult to separate and lead to perfuse bleeding.

5) Prolapsed umbilical cord – In normal delivery the baby presenting part has to descent and delivered first but in some complicated condition the umbilical cord descends first and lie in front of the presenting part which we called as cord prolapsed. In these chances for the compression of cord is very high leading to decreased oxygen supply to the fetus which may result in brain damaged or even death of the fetus.

6) Shoulder dystocia – it occurs when the baby shoulder become wedged in the birth canal after the head has been delivered. If immediate intervention is not given than it may lead to brain damage due to lack of oxygen supply.

7)Prolonged labour- if the combined duration of 1st and 2nd stage of labour is more than 18 hours than it is called prolong labour. It may cause complication to the mother and the fetus like acidosis, postpartum haemorrhage, fetal distress and intrauterine death.

C) Obstetrical emergencies that occur during postpartum are –

1) Postpartum haemorrhage – if the bleeding is around 500 – 1000 ml after the birth of the baby or any kind of bleeding that occur from or into the genital tract that adversely affect the general condition of the mother evidenced by rise in pulse rate and decreased in blood pressure is called postpartum haemorrhage. It will cause obstetrical shock and fatal condition to the mother.

2) Infection – infection is very common during the postpartum period sometime it may lead to endotoxin shock leading to fatal condition of the mother. Infection may cause due to retain bid of the placenta, uncared wound of the episiotomy, uterine rupture, breast engorgement etc...

3) Retained Placenta – if the placenta does not expel out until 30 min after the birth of the baby than it is called as the retained placenta. A retained placenta may be due to atonic uterus or a constriction ring. It will cause severe PPH which in turn lead to shock and infection.

Signs and symptom:

1. Diminished fetal activity.
2. Abnormal bleeding.
3. Leaking amniotic fluid.
4. Severe abdominal pain.
5. Abnormal uterine contraction – regular contraction before 37 weeks of gestation can signal the onset of preterm labour.
6. Rapid increase in blood pressure. Hypertension is one of the first signs of toxemia.
7. Edema. Sudden and significant swelling of hands and feet caused by fluid retention from toxemia.
8. Unpleasant smelling vaginal discharge. A thick, malodorous discharge from the vagina can indicate a postpartum infection.
9. Fever may indicate an active infection.
10. Loss of consciousness due to shock or amniotic fluid embolism.
11. Blurred vision and headaches. Vision problems and headache are possible symptoms of preeclampsia.
12. Fetal parts hard to feel.

Management:

I) Management of Obstetrical emergencies during pregnancy –

- 1) Antepartum haemorrhage – a) in abruption placenta – if mild than bed rest may prevent further separation of the placenta and stem bleeding. In case of severe condition the fetus may have to deliver immediately and a blood transfusion may be required. b) In placenta praevia – patient is advice to hospitalize or should be strictly on home bed rest. If the baby lungs are mature than immediate caesarean section should be performed to deliver the baby.
- 2) Abortion – conditions should be assessed to find out the type of abortion if it is threatened abortion patient should be advice for total bed rest with sedative and pain relief drugs. In other types of the abortion uterus should be examined properly for any remained bits of the product of conception otherwise it will lead to complication later on.
- 3) Ectopic pregnancy – The treatment for the ectopic pregnancy include the laparoscopic surgical removal of the fertilized ovum. In case of ruptured fallopian tube further surgery will be needed for repairing.
- 4) Pre-eclampsia and eclampsia – in this case first we will observed for the severity of the condition if the symptom can be control by antihypertensive drugs and diuretics than the pregnancy can be continue till term. In case of uncontrollable condition the pregnancy should be terminated immediately. If the week of gestation is less than 34 than the mother should be under steroid therapy to attain the lung maturity of the fetus. If the life of the mother and the baby is in danger than pregnancy should be terminated immediately by caesarean section inspite of the week of gestation.
- 5) Premature rupture of membrane – if PROM occur before 37 weeks of or result in the leakage of the amniotic fluid than a course of antibiotics should be started. If the baby is close to term than induction of the labour can be done if no complication occur within 24 of the rupture.
- 6) Cervical incompetence – pelvic floor exercise can be advice to the mother to increase the cervical muscle tone or otherwise surgical procedure can be done to prevent cervical incompetence during pregnancy. Circlage operation can be done. There are two types of operation each claiming an equal success rate of 80%. They are Shirodkar and McDonald operation; in this a non-absorbable encircling suture is placed around the cervix at the level of internal OS. It can be done by around 14 or before 14 weeks of gestation.

7) Decreased Fetal Movement – in such situation the fetal condition need to be assessed first by doing a fetal non-stress or contraction stress test, or biophysical profiles and the situation can be control by blood pressure control, nutritional modification, cardiac therapy, and early delivery can be life-saving.

II) Management of Obstetrical emergencies during labor and delivery –

1) Amniotic fluid embolism – stress that occur due to uterine contraction can cause this complication which has a high mortality rate of the mother. The condition can be treated by administering steroid to the mother and delivering the fetus as soon as possible.

2) Inversion – an inverted uterus should be replaced immediately to its proper position manually or either surgically.

3) Rupture of uterus – laparotomy for repairing and sterilization can be done in case of the clean margin rupture or cut. In severe case hysterectomy should be done.

4) Placenta accrete – surgical removal of the placenta in case of partial placenta accreta. In total placenta accreta hysterectomy can be done if it is a parous women but in case if the women desire th have a child later on than conservative treatment can de done which include cutting of the umbilical cord close to its base and leaving behind the placenta which is expected to be autolysed later on. Methotrexate can be used to enhance the autolysed and at the same time appropriate antibiotics can be provided.

5) Prolapsed umbilical cord – To prevent the compression by the presenting part saline may be infused into the vagina. Replacement of the cord should be done in case of the prolapsed cord outside the vagina and immediately delivery by caesarean section is indicated.

6) Shoulder dystocia – in such situation usually knee chest position is provided to the mother commonly known as McRobert maneuver in an effort to free the child shoulder. Episiotomy should done timely to widen the vaginal opening. In some cases if the shoulder is not able to dislodged from the pelvis than the clavicle may have to be broken to complete the delivery process before the brain damaged could occur due to lack of oxygen supply.

7) Prolonged labour- Antenatal or early intranatal detection, use of partograph, selective and judicious augmentation of labour by low rupture of menbrane follow by oxytocin drip, change of the posture other than supine to increased uterine contraction, avoid dehydration, adequate analgesic for pain relief, amniotomy or oxytocin infusion, otherwise appropriate assisted delivery method can be done either ventouse or forceps or caesarean section.

III) Management of Obstetrical emergencies during postpartum –

1) Postpartum haemorrhage – Massage the uterus, ergometrine or methergin, IV fluid and blood transfusion, catheterize bladder, sedative, if placenta not delivery than should be deliver by Controlled cord traction and if not possible than manual removal if bleeding is due to atonic uterus than uterine massage, methergin, oxytocin, morphine, examined expelled placenta, uterine exploration, bimanual compression, uterine temponade – by packing uterus with gauze piece or with the help of tube, surgical methods to control PPH which include ligation of uterine, ovarian & internal iliac artery and lastly Hysterectomy if bleeding cannot be control.

2) Infection – antibiotics should be started immediately and should be continue until the infection is controlled for atleast 7 – 10 days. Adequate fluid and calories supply should be done, regular observation which include vital sign, observation of the lochial discharge and maintaining intake output chart. Surgical treatment also can be done in case puerperal sepsis is associated with abscess formation; in case of perineal wound pus collection sutures can be removed for draining. If pelvic abscess is present than colpotomy can be done to drain out.

3) Retained Placenta – in this placenta can be removed by controlled cord traction or by manual removal of the placenta. In case of the morbid adherent placenta that is placenta accreta the condition should be assessed to find out whether it is partial or total if partial that should be removed how much we can removed and if total than can go for hysterectomy or either left behind just like that for the process of autolysis by giving medication, commonly methotraxate.

PREVENTIVE MEASURES FOR OBSTETRICAL EMERGENCY:

The measures are –

1) Basic care which include a) Administering medication like antibiotics, uterotonic drugs (oxytocin) and anticonvulsants (magnesium sulphate). b) Removal of retained products following miscarriage or

abortion. c) Manual removal of the placenta in case of difficult or delay expulsion of placenta. d) Assisted vaginal delivery, preferably with vacuum extractor or forceps in case of prolonged and obstructed labour. e) Safe blood transfusion in case of antepartum haemorrhage. f) Basic neonatal resuscitation care in case of respiratory distress syndrome. g) Facilities for care of sick and low-birth weight newborns. h) Performing Caesarean sections if vaginal delivery is risky for both mother and baby.

2) Prevention of delay in providing care as timing is critical in preventing maternal death and disability. Most of the time in case of post-partum haemorrhage mother may die in less than two hours, but in most of the other complications, mothers have timing of between six and 12 hours or more to get life-saving emergency care. Similarly, most perinatal deaths occur around delivery or in the first 48 hours afterward. Factors such as improving awareness in the community, use of new communications, improving transport services availability of proper health facility, including quality care, and availability of staff and equipment can successfully prevent obstetrical emergencies [6]. A study was conducted on Obstetric Emergencies: Role of Obstetric Drill for a Better Maternal Outcome. The objective of the study is to evaluate factors contributing to obstetric emergencies, analyze the fetomaternal outcome and role of obstetric drill in facing these emergencies effectively. The study concluded that active implementation of emergency obstetric care and incorporation of obstetric drill lays a strong foundation for safe fetomaternal outcome [7].

CONCLUSION:

Obstetrical emergency bring increased mortality and morbidity rate to the mother and the baby. Hemorrhage and severe hypertension were the common emergencies during pregnancy, where as prolonged labour, obstructed labour and rupture uterus were common during intranatal period. Postpartum haemorrhage, retained placenta and inversion of uterus and puerperal sepsis were common causes of emergencies during postnatal period. Maternal and perinatal mortality was significantly higher in obstetric emergency cases. In order to control such emergencies, team work and proper training of the health care workers to handle the situation immediately is very important. Setting up of standards care for emergency obstetric and newborn should be formulated immediately in all the labour wards. Sometime delay in getting care and lack of knowledge among the people may also lead to increased incidence of obstetrical emergency so improving awareness in the community, use of new communication technologies, improving transport services and availability of proper health care facility including well trained staff and equipment can solve the problem of obstetrical emergency.

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