**Course Name :An Overview on Maternal Health Antenatal, Intranatal and Postnatal Care**

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**Week:11**

**Lecture:05**

**Management of Puerperium**

Hello students. Welcome you all to the NPTEL online certified course on the topic, an overview on maternal health, the antenatal, intranatal and postnatal care. I am Dr. Barnali Ghosh, an obstetrician and gynecologist working as assistant professor at B.C.Roy Multispeciality Hospital and Medical Research Center, IIT, Kharagpur. So we have been already discussing regarding the postnatal care that is the puerperal changes the normal puerperium and now today we are going to discuss the management of normal puerperium as well as little bit discussion on abnormal puerperium. Right? So puerperium management, abnormal puerperium in the form of any episode of secondary postpartum hemorrhage, any puerperal sepsis, what are the causes and what is its management and regarding wound infection in the form of episiotomy wound breakdown or sometimes due to you know excessive infection it can also lead to necrotizing fasciitis.

So that is the keywords for the class. Now coming to the principles, what are the principles? First and foremost is to restore the health of the mother. This is the first and foremost goal of our management. Next we should you know advise or go for certain precautionary measures to prevent infection, very very important take care of her breasts which will help in you know both that will help in promotion of breast feeding and also will help for you know adequate milk secretion.

We need to go for baby friendly that is an initiative right. There is an initiative where the mothers are educated regarding breast feeding, the method how to breastfeed, when to breastfeed and she must always be motivated to connect with her baby so that you know both the mother and the baby are in same tune then only that will be a bond formation which will help in breastfeeding. And also very important to motivate the mother for contraception because birth spacing is very very important. Now ideally if you are say it is approximately 2 to 3 years of spacing is required. So coming to one by one immediate attention is about the emotional support to the mother.

The mother has just given the birth of a baby and now she must have emotional support from

her family, from her partner to take care of herself as well as her baby right. If say any mishap has occurred if the baby is you know not is asphyxiated or the baby has to be admitted in the NICU in that case also emotional support plays a very vital role. Next is about rest and ambulance. Now ambulatory we always suggest to go for early ambulation because that will help that will help you know in a lot of things that will help in wound healing, that will help to have the mother in a sense of well being, that will help in you know prevention of your deep vein thrombosis because the blood circulations will all regain very early. Also bladder function will be normal it will facilitate any discharge that is coming out from the uterine cavity and this ambulation will also hasten the involution of the uterus right.

So, these are all associated with early ambulation bladder complications will be less, bowel movement will be good, constipation will be less, uterine drainage will be good and there will be proper involution of the uterus and also due to calf muscle contraction and proper blood supply, blood flow through the venous system that will prevent puerperal venous thrombosis as well as embolism. So, very very important is when you go to your ward round after the delivery you know you need to counsel the mother to get up from her bed and to go for early ambulation. Asepsis very important to be maintained particularly in the first week of pure pyram. Antiseptic dressing of the wound, maintaining of asepsis, prevention of outside people who have come to see the mother you should ask them to stay away from her bed and to talk from a distance so that this septic measures are maintained properly. Hospital stay, the less the hospital stay the better is the post operative your care because more the hospital stay the mother will be mentally you know depressed sometimes and also there is more chance of hospital acquired infections you know in the form of UTI in the form of respiratory tract infection.

So, early discharge is our motto and if the mother is fit and fine with you know no other complications we actually discharge her after 2 days of spontaneous vaginal delivery with proper education and instructions regarding maintenance of personal hygiene, regarding say her diet regarding a breast feeding exclusive breast feeding right. So, you train the mother and ask her to come after 3 weeks for a follow up. Diet, diet actually if she is not breastfeeding it is a normal diet of her choice, but if she is lactating then high calories are required because that will help in milk production there should be surplus amount of protein, fat, fluids, vitamins and minerals in her diet. Coming to the care of bladder very very important in our last class we have discussed that over distention of the bladder can lead to excessive uterine bleeding. So, bladder evacuation or bladder drainage is an important part in the postpartum period and the mother should be encouraged to pass urine following delivery as soon as it is convenient right.

She must you know take ample amounts of fluids and should try to evacuate the bladder right and continuous drainage is kept until bladder tone is regained. So, we have discussed in the previous class that if 4 hours have elapsed from her delivery and she has not you know urinated then we catheterize for next 24 hours and then go for intermittent clamping and drainage and

then after 24 hours we remove the catheter to see whether she can evacuate on her own right. So, if there is excessive pain right if there is excessive pain if there is any formation of hematoma if there is any your associated wound infection that will hinder the mother from evacuation of her bladder. So, that we need to evaluate and also sometimes the bladder tone the bladder plexus gets compressed during delivery the bladder tone gets lost and we need to wait for another 48 hours you know for the bladder tone to regain by itself and for that time period we need to go for catheterization. It is very important to ensure adequate drainage of urine so that there is no stagnation of urine in the bladder that may lead to infection or cystitis right.

Now coming to the bowel I have told that ambulation is very important for bowel clearance for bowel movement as well as liberation of dietary intake she must take ample amount of roughage or fiber as well as fluid for you know maintaining the your bowel motility and if necessary sometimes we prescribe mild laxatives in the form of isapgol husk at least 1 to 2 teaspoons to be dissolved in a lukewarm water and given at bed time.

Next coming to the sleep very important to have a adequate sleep because that ensures adequate physical and emotional support. Next very important is the care of vulva and the episiotomy wound she must be educated to maintain the personal cleanliness of the vulval region we sometimes you know prescribe or educate her that when after defecation when she is cleaning the wound right sorry when she is after defecation when she is cleaning the anal region the direction of the hand should be from above downwards not from downwards to above. So, that will prevent the stool materials or the infected infections from the stool materials to come in contact with the episiotomy wound that is one also the perennial wound should always be regularly be dressed with spirit and antiseptic solution after each act of micturation and defecation right and at least it should be twice per day and if the nurse is doing the dressing then she should use a sterile gloves for dressing sometimes we give ointments in the form of neomycin ointment to apply locally also cold or ice sees bath these help in relieving the pain by reducing the edema and inflammation and which we have already been stressing upon is the point on persistent pain persistent pain persistent swelling in the vulval region you know it warrants examination both vaginal as well as rectal examination to detect any type of hematoma if present it needs to be drained right whether there is any type of wound gapping or infection and if present it needs to be treated coming to the care of breast it is very important because she needs to breastfeed her baby so need to educate that the nipple area should be washed with the sterile water with a cotton dipped in a sterile water before each feed and after feeding the nipple area should be now wiped dry right so that is the care of the nipple sometimes there is soreness in the nipple that will create pain where every time the baby is latching on the mother so that can be avoided by frequent short feedings not prolonged but short feeding feedings right and also keeping the nipple clear and dry very very common infection in the nipple region is the candida infection right so sometimes we give ointment or you know before the baby's mouth that can be a source for the candida infection and the you know we we advise her to go for cleaning of the baby's mouth you know at least once a day right so that was nipple soreness nipple confusion is

another terminology which is a situation where the infant accepts the artificial nipple say you are breast you know instead of breastfeeding you are going for bottle feeding right so in case of bottle feeding there will be an you know artificial nipple and the infant accepts that artificial end of the bottle right and refuses the mother's nipple because in bottle feeding the infant has to work less it has to suck less so there is less effort from the part of the baby and that is easier to suck than the mother's breast so once bottle feeding has been started the infant eventually starts to you know neglect the mother's nipple and this is avoided by not offering should not offer any supplemental fluid to the infant from outside exclusive breastfeeding is the term for six months postpartum right so very very low important nowadays and that is mother and infant bonding rooming in the infant should be close to the mother it should be pressed against the mother's chest right and the infant should be as know as long you know more time with the mother huh when when the infant is is not sleeping right so then the mother should converse with the infant and it should be kept in her bed or in a court just beside her bed this establishes the mother child relationship and now makes the mother conversant she is also learning how to take care of the baby so she must learn the art of baby care so that she can take full care of the baby while at home right so that was regarding the infant mother bonding and this should start immediately after birth in the hospital itself under the supervision of trained nurse and doctors right coming to immunization in the postpartum period if the mother's blood group is RH negative we do a cord blood cord blood sampling of the baby right and if baby's blood group is positive then we give NTD immunoglobulin which is 300 microgram IM as soon as possible no preferably within 72 hours of delivery so you must take note of the blood group of the mother if negative check the blood group of the baby right and sometimes booster doses of tetanus toxoid hepatitis B Tdap vaccine may be given if they are not given during pregnancy okay so that was regarding your normal puerperal management or puerperal care of the mother following the delivery of the baby coming to some of the abnormal pure perum what are the complications that can occur in the puerperal period number one is secondary PPH secondary PPH meaning it primary PPH occurs within 24 hours of childbirth secondary PPH is after 24 hours of childbirth right next is your placental tissue retention placental tissue retention can also lead to secondary PPH right so or sometimes say a part of the placental tissue has got retained inside the uterine cavity it can cause the fibrin polyp or placental polyp due to fibrin deposition right so this placental polyp will lead to occasional bleeding per vagina in the postpartum period right so that will you know occasionally there it will get dislodged and cause bleeding so if that is the case you know and sometimes also foul smelling low keya so if patient comes with such complaints then we should always go for an USG and look for any placental beads and if present we should be very meticulous because this placental polyp is now may be very vascular and when you try to dislodge that polyp that can lead to torrential hemorrhage so under USG guidance the expulsion of these placental beads are done next is uterine arteriovenous malformation this sometimes occur these are acquired arteriovenous malformation and patient here also comes with you know repeated episodes of massive vaginal bleeding in the postpartum period you go for an USG you see hyper vascular blood vessels in the uterine cavity right uterine cavity or underlying the

decidua not that here now after delivery it is endometrium so underlying the endometrium there will be hyper vascular capillaries so that also this is very you know emergency situation if present though it is rare it can occur next is pure paral sepsis very very common and very very important right we need to note the temperature whether there is any fever right we need to note any any associated with fever whether there is tissue hypoperfusion right then if there is any hypotension right we need to note next we need to note the site of infection where is the infection most commonly it is in the genital tract and in the genital tract where is the infection within the uterus that is endometrium within the uterus this is the most common site also it can occur outside the genital tract in the form of urinary tract infection in the form of pneumonia in the form of thrombophleblitis in the form of mastitis which is also a cause of pure paral sepsis and very important is the wound infection the episiotomy wound if not taken care of if not regular dressing is not done or personal hygiene is not made it can get infected leading to breakdown of the episiotomy wound right and ultimately septic thrombophlebitis so there is IV access IV channels have been done and through them they have been given IV fluids they have been given IV antibiotics they have been given antiemetics and now in the postpartum period these IV channel site may get infected leading to thrombophlebitis which will lead to painful swelling of the limbs and that can be a site of sepsis right and last but not the least is the list of neuropathies because of the pressure on the stirrups there can be some neuropathies in the form of lateral femoral cutaneous nerve neuropathy you know then femoral nerve neuropathy all these can occur following delivery and these neuropathies most of the cases it gets cured by itself ok. So, coming to just the important ones first is the secondary PPH secondary PPH what is the definition it is the postpartum hemorrhage which occurs between 24 to 12 weeks.

So, if this is the delivery from 24 hours sorry 24 hours of delivery to 12 weeks not 6 weeks 6 weeks is the time for puerperium, but secondary PPH can extend up to 12 weeks from delivery. So, this period this is the period for secondary PPH and if PPH occurs in this period this is primary PPH and what is the cause for secondary PPH most commonly is retained bits of product retained product of conception or retained placental tissue it can be also due to infection GTD. GTD meaning gestational trophoblastic disorder in the form of placental site trophoblastic disorder or choriocarcinoma there can be secondary PPH following delivery and we need to investigate by beta HCG evaluation. In case of bleeding disorder in the form of thrombocytopenia in the form of leukemia right. So, that can also lead to secondary PPH acquired AV malformation arteriovenous malformation and following that after delivery there will become hyper vascular and they sometimes may slough out leading to torrential epi you know hemorrhage you know repeated episodes right.

So, that also needs an USG evaluation. Now, coming to puerperal sepsis. So, secondary PPH we have discussed and another point to add in the secondary PPH is if there is retained placental bits we always go for USG evaluation USG and if it says that there is retained bits of conception inside the uterus then we need to first stabilize the patient you know if blood is required blood

transfusion is done if oxygen is required oxygen nasal oxygen is given and with your antibiotics you first stabilize the patient and then you go for gentle suctioning and this should be done by a very experienced obstetrician if then also you feel that yes it is you know because there is very very high chance of uterine perforation. So, ideally you know we should go for USG guided dilatation and curettage. So, this is our main treatment for your retained placental tissue following delivery.

Now, coming to the puerperal sepsis, puerperal sepsis has a very high mortality rate from septic shock approximately 60 percent and most common sight I have told it is the genital tract within the genital tract the uterus that is in the form of endometritis right. In case there is puerperal fever how to define puerperal fever? puerperal fever is nothing, but when the oral temperature is more than 38 degree Celsius or 100.4 Fahrenheit and this is to be measured on any 2 days in the first day 10 days of postpartum right, but we should exclude the first 24 hours because in this first 24 hours the first postpartum day the mother may have a low grade fever and this is physiological right. After the delivery now there may be certain reactions certain release of certain your hyperthermic modulators which can lead to slight rise of temperature leading to low grade fever in the first 24 hours. So, after 24 hours if you measure the oral temperature as being more than 104 degree Fahrenheit on any 2 days then it is a case of puerperal fever.

Now, coming to puerperal sepsis, severe sepsis and septic shock. So, what happens in sepsis? So, say it can be sight mastitis then can be thrombophlebitis these are all the sites of sepsis mastitis thrombophlebitis then in the uterus endometritis in the urinary bladder UTI right all these infection. So, plus these infections any any site any infection at any site plus your systemic manifestation of infection. This is your sepsis. What is the systemic manifestation of infection? In the form of puerperal fever, in the form of tachypnea, in the form of say tachycardia, in the form of hypotension, in the form of oliguria right these are systemic infection and when it gets more severe it leads to severe sepsis which is sepsis plus plus you know organ dysfunction organ dysfunction and why organ dysfunction due to tissue hypoperfusion.

There can be renal shutdown in the form of oliguria or anuria right it can so happen that there is more breathlessness. So, pulmonary dysfunction, tachypnea it can so happen. So, that these are all cases of severe sepsis and ultimately the last stage is the septic shock where there is no these hypoperfusion persists and the BP also falls. So, hypotension occurs and in spite this is not corrected in spite of IV fluid infusion in spite of IV fluid infusion the hypotension is not corrected we need to go for dopamine and other noradrenaline to raise the BP. So, that is septic shock that is hypoperfusion this is the last stage this is you know you know whole spread sepsis with systemic organ failure and you know these are the you know grave conditions of pure peral sepsis.

What are the causes of puerperal sepsis? Mostly bacterial infection which can be guy gram

positive that is the staphylococcus, gram negative that is the E. coli, anaerobes that is the clostridium. So, all these types of bacterial infection can lead to puerperal sepsis and if there is presence of bacterial infection immediately we should start treatment mostly based on antibiotics. Together with that sometimes analgesics are given. Now, washing of the genital area the wound area with antiseptic solution with spirit is very important dressing of the caesarean wound because these are the most common site of infection.

So, these dressings should be done. Antibiotics what antibiotics mostly penicillin, penicillin or cephalosporin. If it is resistant then we go to broad spectrum antibiotics that is the carbapenems or the imipenems right carbapenem or imipenem. Clostridium mostly we treat it with your metronidazole right. So, anemia that is clostridium in post-abortal mostly after post-abortion sepsis if occurs that is due to clostridium and that is treated by metronidazole ok.

So, that was regarding your pure peral sepsis. Most common cause I have told it is the genital tract endometritis in the uterine cavity and this endometritis when it gets more more spread when it spreads. So, endometriosis is just the endometrium it spreads to the myometrium. So, then it becomes endomyometritis. Next it spreads to the broad ligament.

So, these are the tubes these are the adnexa and here is the broad ligament. So, infection spreads here infection comes here broad ligament leading to pelvic cellulitis it can also cause abscess, T.O abscess, tubo ovarian abscess, pelvic cellulitis and this pelvic cellulitis it can lead to pelvic abscess right it can lead to pelvic abscess and lastly septic pelvic thrombophlebitis. So, here the veins that are passing they may be infected and can lead to septic pelvic thrombophlebitis which is a dreaded condition can also sometimes lead to embolism ok. So, these are the I mean complications of your endometritis if not treated adequately with proper antibiotics.

Now, lastly the wound infection that is the episiotomy if the episiotomy wound infection is there it can lead to break down it can lead to gaping and in that case what is the treatment treat with first analgesics to decrease the pain give cease bath to that area to decrease the inflammation go for antibiotics mostly the cephalosporin or penicillin group of drugs wound debridement if needed if there is more infected tissue at the wound side we need to debride that infected tissues and if it is large if there is a large the total episiotomy wound has been you know has been broken down there is gaping then it should be kept open and allowed to granulate granulate in the form of pink granulation tissue right. So, that is the natural granulation tissue that will help in the healing of that area and if required we may consider repair after one or two weeks. So, this was episiotomy breakdown another is the necrotizing fasciitis which is also very very grave right need to know need to know just suspect when the patient comes with pain out of proportion you see that area of the incision site and there is no such signs and symptoms there are less signs and symptoms of infection no in a visible signs of pus visible signs of infection,

but there is excruciating pain on the part of the patient right. So, that means, there is underlying tissue necrosis and mostly it occurs in diabetes patient in obese patient and this is associated with high mortality and the main stay of treatment is antibiotics sometimes we need to go for total excision of that necrotic tissue from the infected site. So, that was regarding the necrotizing fascitis.

Now, coming to the sepsis which are outside the genital tract, outside the genital tract soft tissue infection right surgical wound infection also infection at the IV site I have told that thrombophlebitis where the channel has been made if that place is infected that can also lead to sepsis right or the site of anesthesia if there was a spinal anesthesia given in the back that point also needs to be cleaned regularly or there can be chance of infection puerperal mastitis no infection of the breast that can lead to breast abscess sometimes which is very painful and that also is a cause of your puerperal sepsis. Puerperal endometritis this is inside the genital tract here it should these are the points outside the genital tract. So, endometritis is within the genital tract. What are the other sites? This is mastitis that we have seen what are the other sites number then it can be so, number 4 it can be the pneumonia, pneumonia or pharyngitis right there can be infection of the upper respiratory or lower respiratory tract very very important is urinary tract infection E.coli right. So, you need to keep in mind if there is any dysuria or if say there is any burning sensation in the urine or increased frequency go for a urine R/E, M/E, C/S to diagnose and if any infection is seen you must treat it with antibiotics and lastly is gastroenteritis. Gastroenteritis mostly we go for salmonella infection from water right or an unpasteurized milk if ingested by the mother there can be infection of the salmonella also you know sometimes we inhale money from pollen right from pollen or your pet if you keep a pet animal then their particulate matter in the air through the air that it can be it cannot come inside the mother and it can lead to infection. So, inhalation of infected particles from the skin or fur of pet animals that will also be detrimental. So, all these needs to be kept in mind and very very important is the treatment which is antibiotics. The proper antibiotics the proper dose of antibiotics and timely treatment will prevent the deterioration of this sepsis and thereby we prevent severe sepsis we prevent septic shock right and thus we decrease the mortality.

So, that was regarding the puerperal sepsis. So, abnormal sepsis we have discussed secondary PPH its causes its treatment then coming to the puerperal sepsis what is the definition what are the causes what are the you know preventive measures that we should take and lastly you know if there is any signs of severe sepsis the mother should you know definitely be brought to the clinic and it requires hospital admission or ICU admission and under proper observation it needs to get treated with proper antibiotics. So, that was all regarding puerperium. References has been taken from D.C.Dutta book of obstetrics the Williams obstetrics 26th edition and the James book on high-risk pregnancy. So, thank you all for your patient hearing. Thank you.