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RESEARCH ARTICLE

VAGINAL INFECTIONS AS A CAUSE FOR PRETERM LABOUR , PPROM,PROM

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Abstract

Prematurity is the cause of 85% of neonatal morbidity and mortality. Recently, vaginal infection, has been associated with increased risks for prematurity and premature rupture of membranes(PROM)[1,2,3.] Since preventive measures can prevent the above phenomena, taking these facts into consideration the present study was undertaken to study the role of vaginal infection in preterm labour, PPROM,PROM.A Prospective observational study was done in bharati hospital pune with the Aim: To study the role of vaginal infections in preterm labour, preterm premature rupture of membranes(PPROM), and premature rupture of membranes(PROM). OBJECTIVES: To diagnose vaginal infection by taking high vaginal swab. To study the relation of vaginal infection and preterm labour, PPROM, PROM.The study was done on 100 patients of preterm labour ,PPROM and PROM . Vaginal infection was confirmed by high vaginal swab.and neonatal outcome was noted. Out of 100 ,high vaginal swab had growth in 59 patients,and 41 were sterile.Ecoli was the commonest isolated organism grown followed by candida.RDS was the commonest neonatal complication seen in mothers with vaginal infection who delivered prematurely.thus Vaginal infection being a common cause of preterm labour, PPROM and PROM, timely detection and treatment is important to avoid prematurity, associated neonatal morbidity and mortality.

Introduction

When the equilibrium between Homo sapiens and the microbial world is disrupted, the penalty is disease.

Times have changed and improved perinatal care, early diagnosis of infection and availability of antibiotics has decreased the morbidity and mortality rates. Infections carry with them a high risk of maternal and neonatal morbidity. Infection early in gestation may result in congenital anomalies or alterations in fetal growth. As infections are potentially preventable, they should be identified early and treated.

Prematurity is the cause of 85% of neonatal morbidity and mortality. Preterm labour is any labour which starts before 37 completed weeks of gestation. Preterm Premature rupture of membranes (PPROM) is defined as rupture of membrane before 37 weeks of gestation before the onset of labour. It is associated with 30-40% of preterm deliveries .Premature rupture of membranes (PROM) is rupture of membranes beyond 20 weeks of gestation but before the onset of labour. The most serious outcome of preterm labour , premature rupture of membranes is often associated with adverse maternal and infant outcomes related to infection[4]. It has been estimated that 10% of perinatal deaths are directly or indirectly attributable to PROM.

The causes of most preterm labour, PPROM,PROM is not known ,but a variety of conditions have been shown to be associated with an increased risk of preterm delivery. Studies indicate that one of the causes is infection and vaginal infection, a common vaginal syndrome in women of reproductive age, has been associated with increased risks for prematurity and premature rupture of membranes[1,2,3, 5, 6] Main cause for rupture of membranes is decrease or loss of tensile power of the membranes. The ammonic collagens are structural component for the tensile strength of the membranes. Hypothesis is that several organisms that are commonly present in the vaginal flora, including group Ecoli, B streptococci, Staphylococus aureus and microorganisms that cause Bacterial Vaginosis , secrete proteases that degrade collagen and weaken the fetal membranes leading to PROM. [7, 8]. During infections there is release of inflammatory markers like IL-1, IL-6, and Tumor necrosis factor. These lead to increase in metalloproteinase, which is responsible for collagen degradation, hence there is decrease in the tensile power of membranes and leads to its rupture.

Preterm uterine activity is believed to be mediated by the high phospholipase- A2 activity produced by selected organism in the vaginal flora; it promotes release of arachidonic acid from cell membranes. The placental membranes then utilize the arachidonic acid to synthesize prostaglandin E2[9]. The role of prostaglandins in facilitating cervical effacement and dilatation is well documented [10].

The single greatest threat to infant with preterm labour, PPROM and PROM is respiratory distress syndrome (RDS). Prematurity is associated with nearly 70% of perinatal mortality in India[11].There is increased incidence of perinatal mortality which may be due to RDS, infection, asphyxia and congenital anomalies. Other causes of death are cord accidents, intracranial hemorrhage, trauma, necrotizing enterocolitis. Inefficient blood brain barrier makes them more prone for brain damage.

Since preventive measures can prevent the above phenomena, taking these facts into consideration the present study was undertaken to study the role of vaginal infection in preterm labour, PPROM, PROM.

MATERIAL AND METHODS

A prospective observation study , comprised of 100 patients admitted with the diagnosis of preterm labour, PPROM, PROM in the Department of Obstetrics and Gynecology, at Bharati Hospital Pune over a period of 2 years (June2011 to June 2013) and filling our inclusion criteria were included in the study. Informed consent was obtained from each patient.

Inclusion criteria-Women beyond 20 weeks of gestation by LMP, USG and diagnosed to have preterm labour, Threatened preterm labour, PPROM, PROM.

Exclusion criteria-Women beyond 20 weeks of gestation diagnosed to have preterm labour, PPROM, PROM with diabetes mellitus , preeclampsia, polyhydroamnios, IUD, abruption placentae, placenta previa , more than one fetus , known congenital malformation, cervical incompetence .

The diagnosis of spontaneous rupture of the membranes was confirmed by inspection of the cervix,for flow of amniotic fluid from the cervical os by asking the patient to cough. The amount, colour and smell of the fluid were assessed. Based on the findings of cervical diltation and uterine contractions patients were categorized as preterm labour (uterine contractions 4/20″/10′, cervical dilatation ≥3cm, effacement ≥80%) or threatened preterm labour (uterine contractions < 20 seconds, cervical dilatation <3cm, effacement <80%).

Vaginal infection was diagnosed by careful history taking, physical examination and by taking high vaginal swabs. Sample for high vaginal swab was obtained under aseptic precautions during speculum examination from the posterior fornix with a sterile cotton-tipped swab. This sample was sent to laboratory for microscopy and culture sensitivity study. The swabs were inoculated on Blood agar, MacConkey's and sabouraods dextrose agar for 24-48 hrs. Culture was considered sterile if no growth was seen after 72 hours. The colonies were studied according to the standard procedures including gram stain colony morphology & biochemical characteristics. Total count, differential count and urine analysis was done for all cases. All the patients were monitored for fever, maternal tachycardia, uterine tenderness, and foul smelling vaginal discharge. The neonatal out come in patients who delivered was noted and follow up was kept.

RESULTS:

Out of 100 patients studied 35 were of preterm labour,31 of threatened preterm labour ,18 of PPROM,16 OF PROM.

Out of the 100 cases of endocervical swab culture study, 59 cases were positive & 41 cases were sterile(fig 1). Out of 31 cases of threatened preterm 28(90.33%) patients were conserved due to prompt treatment of infections.(fig2). Out of 31 cases, 20 cases of positive culture in threatened preterm labour,18(90%) cases were conserved and 2(10%) had pre- term delivery .

Out of 3 cases who had preterm delivery 2 patients had growth in HVS suggesting vaginal infection. This suggests that if the infections are promptly treated preterm delivery can be avoided. Ecoli formed the largest group of positive culture study (18%). The common next organism isolated was Candida albicans (12%).

Staphylococus aureus was isolated in 8% of the cases. Streptococcus spp was seen in 5% of cases, Klebsiella pneumonia was seen in 7% of cases.(fig3) Gentamicin, Cefotaxim, cephalexin is effective in most of the organism specially in Ecoli.

Out of total 72 births 31 neonates had complications. Of the different complication seen in the neonates RDS 38.7% and it was most seen in preterm births and PPROM. Neonatal death was seen in 3 neonates out of 72 births. In cases of pneumonia, neonatal sepsis, and neonatal death ,all mothers had growth in high vaginal swab (100%).Neonatal death were all due to extreme prematurity.

DISCUSSION

In studies by Naeye et al[12,] McDonald H.M. et al[13,] Das C.R. et al[14] showed that infection was 2 -3 times more common in patients with rupture of membranes before 37 weeks of gestation than when foetal membranes ruptured at term. In our study 9 (56.3%) cases of PPROM, 6 (33.3%) cases of PROM were culture positive. This is in accordance with the studies mentioned above. We studied 31 cases of threatened preterm labour out of them 20 had growth in HVS suggesting vaginal infection, out of those having vaginal infection 18(90%) cases were conserved by prompt treatment of infection and 3 delivered of them 2(10%) patients had positive HVS culture.

E-coli was the commonest organism isolated in the study done by Sharma[15], Das C.R. et al[14] (44%), Raunt et al[16], Agarwal et al[17].In our study too the commonest bacteria isolated from the endocervix was ecoli (18%) The common next organism isolated was Candida albicans (12%).

In a study done by Lanier Jr et al, the incidence of chorioamnionitis after PROM is 20%.[18] In the present study there was no case of clinical chorioamnionitis. This probably was because all the patients in the study were given prophylactic antibiotics and were delivered before 24hrs from the onset of PROM.

A study done Swati Pandey, where neonatal sepsis was seen in 25% of the cases.[19]Our study showed 12.9% cases of neonatal sepsis and the mother of all these neonates had growth in HVS suggesting vaginal infection. The incidence of neonatal sepsis was less as the neonate after birth received injectable antibiotics.

CONCLUSION

Prematurity is an important problem in obstetrics.

Vaginal infection being a common cause of preterm labour, PPROM and PROM, timely detection and treatment is important to avoid prematurity, associated neonatal morbidity and mortality.

REFERENCES

- Eschenbach, D. A., M. G. Gravett, K. C. S. Chen, U. B. Hoyme, and K. K. Holmes. 1984. Bacterial vaginosis during pregnancy. An association with prematurity and postpartum complications, p. 213-222. In P. A. Mardh and D. Taylor-Robinson (Ed.), Bacterial vaginosis. Almqvist & Wiksell, Stockholm.
15a.Gardner, M.J., and D. G. Altman. 1989. Statistics with confidence. Br. Med. J.

- Gravett, M. G., D. Hummel, D. A. Eschenbach, and K. K. Holmes. 1986. Preterm labor associated with subclinical amniotic Fluid infection and with bacterial vaginosis. Obstet. Gynecol. 67:229-237.

- Gravett, M. G., H. P. Nelson, T. DeRouen, C. C. CritchlowD. D. Eschenbach, and K. K. Holmes. 1986. Independent association of bacterial vaginosis and Chlamydia trachomatis infection with adverse pregnancy outcome. Jama 256:1899-1903 journal of clinical. Microbiology.

- Gynecol Obstet Invest. 2006; 61(3):135-8. Epub 2005 Dec 5.

- Martius, J., M. A. Krohn, S. L Hillier, W. E. Stamm, K. K. Holmes, and D. A. Eschenbach. 1988. Relationships of vaginal Lactobacillus species, cervical Chlamydia trachomatis, and bacterial vaginosis to preterm birth. Obstet. Gynecol. 71:89-95

- McGregor, J. A., J. I. French, R. Richter, A. Franco-Buff, A. Johnson, S. Hillier, F. N. Judson, and J. K. Todd. 1990. Antenatal microbiologic and maternal risk factors associated with prematurity. Am. J. Obstet. Gynecol. 163:1465-1473.

- McGregor JA, French JI, Lawellin D, Franco-Buff A, Smith C, Todd JK. Bacterial protease-induced reduction of chorioamniotic membrane strength and elasticity. Obstet Gynecol 1987; 69 :167-74.

- Draper D, Jones W, Heine RP, Beutz M, French JI, McGregor JA. Trichomonas vaginalis weakens human amniochorion in an in vitro model of premature membrane rupture. Infectious Disease Obstet Gynecol 1995; 2 :267-74.

- Bqar R. Curb& V. Daws C,Gluck L. Premature labor: II bacterial sources of phosphokpase.J. Obstet Gynecol 1981: 479-82.

- Casey ML, Mad) ona, d PC. Bismolecular process is the initiation of parturition: d & dual activation. Cli Obstet Gynecol 1988; 31:5X%52.

- Ajit Mehta, prematurity –A Review:Jof obst gyn of india 1971; 21: 453- 461

- Naeye RL, Dellinger WS, Blac WA, Fetal and maternal features of antenatal bacterial infection. Am J. Pediatrics 1978; 61:171.

- McDonald H.M,O' Loughlin J. A, Jolly P, Vigneswaram R. Br J Obstet Gynecol 1991 May;98(5):427-35.

- Das C. R, Pattnaik PL, Sahoo PK. Prevalence of vaginal infection in preterm labour. Antiseptic 1996 April;93(4):140-43.

- Sharma JB, Prevalence of pathogenic Bacteria in Genital tract in preterm labour. J. Obstet and Gynecol of India 1989 ; 229

- Raunt M. D, Dora H, Premature rupture of membrane – A clinical and bacteriological study. J of Obst Gyn 1988;38 (1-6);184-187.

- Agarwal S. K, Rathi A.K, Asha Awasthi, Khan A.M. J Of Obst Gyn of India 1979: 40 - 44.

- Lanier RL Jr, Carbraugh RW, Filling in DW, Baker RE Jr. Incidence of maternal and foetal complications associated with rupture of membranes before onset of labour. Am J Obstet Gynecol 1965; 93: 398.

- Swati Pandey, Anupama Dave, Bandi S. Maternal and foetal outcome in cases of PROM J. Obstet Gynecol Ind.2000;50(1):63-5.