

ROLE OF PROSTAGLANDIN E₂ FOR INDUCTION OF LABOR IN PATIENTS WITH PREMATURE RUPTURE OF MEMBRANES AT TERM.

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Abstract;

Background; As the time between the rupture of the membranes and the onset of labor increases, so may the risk of maternal and fetal infection so this study was conducted to ascertain the role of prostaglandin E₂ for induction of labor in patients with PROM at term. **Material and Methods;** All the study cases (n = 161) presenting with premature rupture of membranes (PROM) having singleton were taken from Department of Gynecology and Obstetrics, Nishtar Hospital Multan in this descriptive case series. Pregnant women were examined in lithotomy position, leakage of fluid was inspected by sterile speculum. Three mg of Prostaglandin E₂ was kept in posterior fornix and women were kept in left lateral position for 30 minutes. If the uterine activity does not start and Bishop score remains unchanged (≤ 6), same dose was repeated after 6 hours. Data was analyzed by using SPSS Version 20. **Results;** Mean age of our study cases was 28.74 ± 5.03 years (with minimum age was 21 years while maximum age was 39 years). Our study results have indicated that majority of our study cases i.e. 112 (69.6%) were aged 20 – 30 years of age. Of these 161 study cases, 70 (43.5%) were from rural areas while 91 (56.5%) were from urban areas. Mean parity of our study 3.17 ± 0.81 and most of the study cases i.e. 105 (65.2%) had parity up to 3. Mean gravidity was 4.35 ± 0.81 and most of the study cases i.e. 91 (56.5%) had gravidity up to 4. Mean body mass index (BMI) was noted to be 24.21 ± 3.08 kg/m² and obesity

was noted in 28 (17.4%) of our study cases. Mean duration of hospitalization before delivery was noted to be 14.15 ± 4.67 hours while time taken for induction of labor was 4.24 ± 1.36 hours and mean gestational age was noted to be 39.43 ± 1.17 weeks. Cesarean section was noted in 31 (19.3%) of our study cases while 130 (80.7 %) underwent vaginal deliveries and poor APGAR score was noted in 11 (6.8%). **Conclusion;** Our study results support the use of prostaglandin E₂ for induction of labor in women with premature rupture of membranes at term as it was safe, reliable and effective mode of treatment. No major side effects were noted in our study. Mode of delivery and poor APGAR score were significantly associated with parity, gravidity, obesity and prolonged duration of hospitalization.

Keywords; Premature rupture of membrane, term, prostaglandins

Introduction;

Premature rupture of membranes (PROM) is referred as “rupture of the fetal membranes prior to the onset of labour and can occur at any gestational age even at 42nd week”¹⁻⁴. Premature rupture of membranes (PROM) can be seen in 10% of all pregnancies and is a leading cause of preterm births and perinatal morbidity and mortality⁵. PROM has previously been reported to occur in 8-19.53% of term pregnancies and 2-25% of all pregnancies. PROM has been shown to be the cause of 18-20% of perinatal mortalities and 21.4% of perinatal morbidity.⁶⁻⁷ Diagnosis of PROM can be easily done on the basis of obvious rupture of membranes while several numbers of false positive and negative results obtained through applying conventional diagnostic methods in the suspected cases of PROM may result in inappropriate interventions such as hospitalization and induction of labour.⁸

Prostaglandin E₂ are effective in inducing labour in women with PROM at term. For labour that is induced, timing of induction is controversial. Several studies have demonstrated the use of vaginal prostaglandin in women at term with PROM.⁹

A study conducted by Rijal et al¹⁰ reported 89 % vaginal deliveries and 11 % women undergoing cesarean section deliveries with prostaglandin E₂ at term. Snehamy et al⁹ reported 82 % vaginal deliveries and 18 % cesarean section rate, while APGAR score was less than 7 in 5.4% new borns.

Material and methods

All the study cases (n = 161) presenting with premature rupture of membranes (PROM) having singleton were taken from Department of Gynecology and Obstetrics, Nishtar Hospital Multan. Patients with History of regular uterine contractions and presence of fetal anomalies, diabetes, UTI and patients with previous history of diabetes, UTI and pre-eclampsia were excluded. Pregnant women were examined in lithotomy position, leakage of fluid was inspected by sterile speculum. Three mg of Prostaglandin E₂ was kept in posterior fornix and women were kept in left lateral position for 30 minutes. If the uterine activity does not start and Bishop score remains unchanged (≤ 6), same dose was repeated after 6 hours. Parinatal outcome was seen in these patients by recording APGAR score at 1 minute and 5 minutes. Data was analyzed by using SPSS Version 20.

Results;

Our study included a total of 161 study cases with PROM at term who met inclusion criteria of our study. Mean age of our study cases was 28.74 ± 5.03 years (with minimum age was 21 years while maximum age was 39 years). Our study results have indicated that majority of our study cases i.e. 112 (69.6%) were aged 20 – 30 years of age. Of these 161 study cases, 70 (43.5%) were from rural areas while 91 (56.5%) were from urban areas. Mean parity of our study 3.17 ± 0.81 and most of the study cases i.e. 105 (65.2%) had parity up to 3. Mean gravidity was 4.35 ± 0.81 and most of the study cases i.e. 91 (56.5%) had gravidity up to 4. Mean body mass index (BMI) was noted to be 24.21 ± 3.08 kg/m² and obesity was noted in 28 (17.4%) of our study cases. Mean duration of hospitalization before delivery was noted to be 14.15 ± 4.67 hours while time taken for induction of labor was 4.24 ± 1.36 hours and mean gestational age was noted to be 39.43 ± 1.17 weeks. Cesarean section was noted in 31 (19.3%) of our study cases while 130 (80.7 %) underwent vaginal deliveries and poor APGAR score was noted in 11 (6.8%) of our study cases.

Discussion;

In approximately 8 percent of women with pregnancies at term, the fetal membranes rupture before labor begins.¹¹⁻¹² PROM occurs when intrauterine pressure overcomes membrane resistance^{13, 14}. Our study included a total of 161 study cases with PROM at term who met inclusion criteria of our study. Mean age of our study cases was 28.74 ± 5.03 years (with minimum age was 21 years while maximum age was 39 years). Our study results have indicated that majority of our study cases i.e. 112 (69.6%) were aged 20 – 30 years of age. Yaqub et al¹⁵ from

CMH Rawalpindi reported 26.53 ± 3.57 years mean age of the women with PROM at term which is close to our study results. Khan et al ¹⁶ from Bahawalpur also reported similar results. Tariq et al ¹⁷ from Rawalpindi also reported mean age 26.7 ± 4.5 years mean age which is close to our study results. Sadeh-Mestechkin et al ¹⁸ also reported mean age was 29.91 ± 6.96 years which is close to our study results.

Of these 161 study cases, 70 (43.5%) were from rural areas while 91 (56.5%) were from urban areas. Mean parity of our study 3.17 ± 0.81 and most of the study cases i.e. 105 (65.2%) had parity up to 3. Mean gravidity was 4.35 ± 0.81 and most of the study cases i.e. 91 (56.5%) had gravidity up to 4. Khan et al ¹⁶ also reported similar findings which are in compliance with our study results. Tariq et al ¹⁷ also reported similar results.

Mean body mass index (BMI) was noted to be 24.21 ± 3.08 kg/m² and obesity was noted in 28 (17.4%) of our study cases. Tariq et al ¹⁷ also reported similar findings.

Mean duration of hospitalization before delivery was noted to be 14.15 ± 4.67 hours while time taken for induction of labor was 4.24 ± 1.36 hours. Yaqub et al ¹⁵ reported 17.4 ± 2 hours mean duration of hospitalization while 8.4 ± 2.3 hours mean duration for induction of labor. These findings are in compliance with that of our study results. A study conducted by Shah et al ¹⁹ reported 13 hours mean duration of hospitalization which is close to our study results. Poornima et al ²⁰ also reported 13 ± 6.2 hours mean duration of hospitalization which is close to our study results and time taken for induction of labor was 5.5 ± 1.4 which is again in compliance with our study results.

Mean gestational age was noted to be 39.43 ± 1.17 weeks. Yaqub et al ¹⁵ from CMH Rawalpindi reported 38.69 ± 1.09 weeks mean gestational age of these patients which is in compliance with that of our study results. Khan et al ¹⁶ from Bahawalpur also reported 38.3 ± 1.1 weeks mean gestational age which is close to our study results. Sadeh-Mestechkin et al ¹⁸ also reported 39.04 weeks which is close to our study results.

Cesarean section was noted in 31 (19.3%) of our study cases while 130 (80.7 %) underwent vaginal deliveries and poor APGAR score was noted in 11 (6.8%) of our study cases. Yaqub et al ¹⁵ from CMH Rawalpindi reported 16.14 % C. section deliveries while poor APGAR score in 7.29 %, these findings are similar to that of our study results. A study conducted by Shah et al ¹⁹ reported 80 % vaginal deliveries which is in compliance with our study results. Sadeh-Mestechkin et al ¹⁸ also reported 79.5 % vaginal deliveries which is

close to our study results. Poornima et al²⁰ also reported poor APGAR score in 4 % neonates which is close to our study results. A study conducted by Rijal et al¹⁰ reported 89 % vaginal deliveries and 11 % women undergoing cesarean section deliveries with prostaglandin E₂ at term which is close to our study results. Snehamy et al⁹ reported 82 % vaginal deliveries and 18 % cesarean section rate, while APGAR score was less than 7 in 5.4% new borns. These results are in compliance with our study results.

Conclusion;

Our study results support the use of prostaglandin E₂ for induction of labor in women with premature rupture of membranes at term as it was safe, reliable and effective mode of treatment. No major side effects were noted in our study. Mode of delivery and poor APGAR score were significantly associated with parity, gravidity, obesity and prolonged duration of hospitalization.

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