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Original Article

Frequency of Placental Abruption in Preterm Premature Rupture of Membranes (PPROM)

Nadia Rani[1], Nilofar Iqbal[2], Tasmia Waris[3], Sanila Gul[4] and Muhammad Izhar[5]

[1]Medical Teaching Institute (MTI) THQ Topi, Swabi, Pakistan
[2]Gajju Khan Medical College, Swabi, Pakistan
[3]Government Maternity Hospital, Hashtnagri, Peshawar, Pakistan
[4]Bacha Khan Medical Complex, Swabi, Pakistan
[5]Institute of Kidney Disease, Peshawar, Pakistan

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***Corresponding Author:**
Muhammad Izhar
Institute of Kidney Disease, Peshawar
izhar.kmc888@gmail.com

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ABSTRACT

Placental abruption is the premature separation of normally placed placenta. Its incidence is 1% worldwide in all pregnancies and 7% in Pakistan. **Objective:** To determine frequency of placental abruption in preterm premature rupture of membranes. **Methods:** This study was conducted in Department of obstetrics and gynecology DHQ Hospital Topi Swabi from 1st March 2021 to 31st October 2022. Total of 276 patients were recruited. Routine clinical examination was done for the confirmation of preterm PROM. All the patients were followed till delivery and placental abruption was diagnosed. All the mentioned information obtained were noted on a pre designed proforma. **Results:** Mean age was 33 ±2.17 years. Primi para and multi para were 40% and 60% respectively. Forty-two % patients were primi gravida, 58% patients were multi gravida. 33% mothers had gestational period of age range from 28-32 weeks while 67% patients had POG range 33-37 weeks. More over the frequency of placental abruption in preterm premature rupture of membranes was 5%. **Conclusions:** On the basis of results, it was concluded that active expectant management strategy and strict follow up minimizes the risk of occurrence of perinatal asphyxia, and neonatal morbidity and mortality.

INTRODUCTION

Placental abruption is the premature separation of normally placed placenta. It is serious obstetrics complication for both mother and fetus [1]. Its incidence is 1% worldwide in all pregnancies and 7% in Pakistan [2]. Placental abruption patients usually have combination of bleeding per vagina, pain abdomen and tense and tender abdomen. Patient may present with massive bleeding resulting in fetal death and severe maternal morbidity. Perinatal mortality varies from 20-67% [3]. Among multiple risk factors, premature rupture of membranes (PROM) is an important risk factor for abruption of placenta [4]. It is the rupture of placental membranes before start of regular uterine contractions [5]. Incidence of preterm PROM is 2-3% and term PROM is 8%. Prolong premature rupture of membranes leads to intrauterine infections, chorioamnionitis and placental abruption [6]. Some studies show that prolong preterm PROM leads to neutrophillic infiltration into decided and placental abruption. Sudden uterine decompression after PROM cause placental abruption [7]. Preterm premature rupture of membranes (PPROM) usually occurs before 37 weeks of gestation and is greater risk for feto-maternal

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complications. Preterm PROM results in one-third of all preterm babies and suffer from the complications of prematurity, including death [8,9]. Another study conducted in US and published in Acta Obstet Gynecol shows that incidence of placental abruption in preterm PROM was more than in total study population i.e. 11/1000 v/s 4.2/1000 [10]. Reptured membranes results in a rent that provide a pathway for bacteria to transmit and thus both the mother and fetus at high risk for serious manifestations. The Low levels of amniotic fluid surrounding the womb increases the risk of the compression of umbilical cord and interfere with development of lung [11]. As no research study had been conducted in our locality regarding PPROM that is why this study will provide us the latest and updated information. To determine frequency of placental abruption in preterm premature rupture of membranes.

METHODS

This study was conducted in department of obstetrics and gynecology DHQ Hospital Topi Swabi from 1st March 2021 to 31st October 2022. Patients fulfilling the inclusion criteria were recruited for the study. The purpose of the study was explained to the subjects and they were assured about the risks and benefits involved. Written informed consent was taken from each patient. Routine clinical examination was done for the confirmation of preterm PROM like visualization of amniotic fluid pooled in posterior fornix or draining from cervix on bivalve speculum examination. All the patients were followed till delivery and placental abruption was diagnosed by separation of normally sited placenta after 28 weeks of gestation (radiological evidence) and clinically with tense and tender abdomen on per abdominal examination with or without per vaginal bleeding (200-400ml) and those patients who have reteroplacental clots after delivery. All the information was noted on a proforma. Exclusion criteria was applied to strictly observed to control confounders and bias in the study.

RESULTS

Age distribution among 276 patients was analyzed and 116(42%) patients were in age range 18-26 years, 160(65%) patients were in age range 27-35 years, Mean age was 30 ±11.35 years as shown in table 1.

AGE	FREQUENCY(%)
18-26 years	116(42%)
27-35 years	160(58%)
Total	276(100%)

Table 1: Age Distribution (total patients =276)

Status of parity among 276 patients were analyzed. 110(40%) patients were primi para and 166(60%) patients were multi para. Status of gravida among 276 patients was analyzed as 116(42%) patients were primi gravida, 160(58%) patients were multi gravida. Gestational age among 276 patients was analyzed as 91(33%) patients had POG range 28-32 weeks while 185(67%) patients had POG range 33-37 weeks. Placental abruption among 276 patients was analyzed as 14(5%) patients had placental abruption while 262(95%) patients didn't have placental abruption as shown in table 2.

Placental Abruption	Frequency(%)
Yes	14(5%)
No	262(95%)
Total	276(100%)

Table 2: Frequency of Placental Abruption (n=276)

Stratification of placental abruption with respect to age and period of gestation as shown in table 3 and 4.

PLACENTAL ABRUPTION	18-25 years	26-35 years	Total
Yes	6	8	14
No	110	152	262
Total	116	160	276

Table 3: Placental Abruption Stratification in Terms of Age Distribution (n=276)

Applying Chi square test (P value =0.9486)

Stratification of placental abruption with respect to age and period of gestation as shown in table 3 and 4.

PLACENTAL ABRUPTION	28-32 weeks	33-37 weeks	Total
Yes	5	9	14
No	86	176	262
Total	91	185	276

Applying Chi square test (P value was 0.8226)

Table 4: Stratification of Placental Abruption in Terms of Period of Gestation (n=276)

DISCUSSION

The incidence of PROM worldwide is 1% in all pregnancies and 7% in Pakistan [2]. Placenta abruption in patients presents with vaginal Bleeding and pain abdomen. This results in a number of maternal and fetal complications. Furthermore, Patient may present with massive bleeding leading to fetal demise and severe maternal morbidity [3]. Among multiple risk factors premature rupture of membranes (PROM) is an important risk factor [4]. In this study mean age was 33 ±2.17 years. 40% patients were primi para while 60% patients included were multi para. Thirty three percent patients had POG range 28-32 weeks while 67% patients had POG range 33-37 weeks. 42% and 58% patients were primi gravida, and multi gravida respectively. Placental abruption frequency was 5% while similar incidence of 4.7% was noted in another study in patients with singleton pregnancy. In women following p-PROM the odds ratio of abruption of placenta was 6.50 (< 0. 0 5) [12]. 64 cases (67.4%) of placental abruption occurred among 95 cases with no p-PROM while 31 cases (32.6%)

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occurred following p-PROM. However, the administration of corticosteroids such as dexamethasone or betamethasone causes reduction in incidence of neonatal morbidity and mortality. The incidence of respiratory distress syndrome as well as necrotizing Enterocolitis were reduced when either betamethasone IM or dexamethasone is administered [13,14]. In contrast, maternal and neonatal outcomes among mothers with and without p-PROM were not significantly different. Although preterm premature rapture of membrane is one of significant risk factors that exists for abruption of placenta related to chorioamnionitis and may not affect the perinatal outcomes. Another study conducted reported that placental abruption incidence in preterm PROM was significantly more than the incidence in total study population i.e. 11/1000 v/s 4.2/1000 [15]. In another study conducted had reported that the incidence of placental abruption in PROM was 11.0 per 1,000 (34 of 3 077) and higher than in comparison to the total study population [16]. The incidence of placental abruption was less in PPROM (11.0 /1,000) in comparison to births without PPROM (36.1 / 1 000; adjusted odds ratio 0.3). No significant association was observed in term births [17]. In the current study stratification of placental abruption with respect period of gestation shows that placental abruption occurs in decreased number of patients in comparison to full term pregnancy (Table no.4). Gestational age, maternal and fetal status are other factors considered when to do delivery of fetus. In patients having membrane rupture at 32–34 weeks, conservative management is often practiced in obstetrics, by waiting till spontaneous onset of uterine contractions.5% of patients suffered placental abruption in preterm pregnancies as shown in Table 2. Mothers having amnionitis are administered broad spectrum antibiotics and all mothers should receive appropriate antibiotics prophylaxis [18]. Obstetricians caring for gravid patients should be well equipped because early diagnosis and management could result in better outcome [19]. Strict bed rest at approximately 32-34 weeks' gestations is acceptable for mothers having no active complaint. They must be educated about their condition and to consult obstetrician in case of any emergency or preterm labor [20].

CONCLUSIONS

On the basis of results, it was concluded that active expectant management strategy and strict follow up minimizes the risk of occurrence of perinatal asphyxia, and neonatal morbidity and mortality.

Conflicts of Interest

The authors declare no conflict of interest.

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