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Research Article

**A CROSS-SECTIONAL ASSESSMENT TO STUDY THE
PATIENTS WITH BIOPHYSICAL PROFILE FOR ADVERSE
PERINATAL OUTCOMES**¹Dr Ayesha Rehman, ²Dr Hafsa Yousaf, ³Dr Maria Asim¹Children Hospital Faisalabad²THQ Hospital Jhumra³Nishtar Hospital Multan**Abstract:**

Objective: The objective of this research was to assess the poor biophysical profile patients for the adverse perinatal outcome.

Materials and Methods: We carried out this cross-sectional research at Jinnah Hospital, Lahore (October 2018 to March 2019) on a total of one hundred patients who were enrolled in the age bracket of (20 – 35) years. The poor biophysical profile of patients was with a score under 8/10 out of five parameters as assessed through USG evaluation. The patients were screened with singleton pregnancy at 32nd to 42nd gestational week as calculated from the last menstruation cycle and duly confirmed through USG assessment. We also assessed poor APGAR and the cesarean section as adverse perinatal outcomes.

Results: Research population consisted of 100 patients with a respective mean age and mean gestational age of (26 ± 43) years and (37.78 ± 2.66) weeks. There were 45, 32 and 23 patients respectively in age brackets of (20 – 25) years, (26 – 30) years and (31 – 35) years. Poor APGAR score was reported in 92 patients; whereas, 75 patients received cesarean section.

Conclusion: Adverse perinatal outcomes occurrence like poor APGAR score (at five minutes) was high among the patients showing poor biophysical profile.

Keywords: Cesarean Section, Poor Biophysical Profile, APGAR Score, Mean Age and Gestational Age.

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INTRODUCTION:

The perinatal period is the vulnerable timeframe in an individual's life with increased mortality than other timeframes. Infections, preterm births, intrapartum asphyxia and hypertensive disease are vital contributors for perinatal mortality [1]. About two-third of perinatal mortalities are because of infection, perinatal hypoxia and obstetrical factors that can be prevented. Such problems can be treated with different approaches to antenatal foetal surveillance. Antepartum foetal assessment is complicated which has been devised to classify compromised and normal fetuses before labour. Major techniques for foetala evaluation include a contraction stress test, non-stress test, foetal movement count, biophysical profile, umbilical artery Doppler velocimetry and modified biophysical profile [2]. Contraction stress test and non-stress test are poor indicators of the asphyxiated infant.

The biophysical profile combines dynamic real-time B-mode ultrasonographic evaluation, Non-stress test and certain parameters of the foetal which is a clinical instrument that integrates different dynamic biophysical activities levels [3]. Both indicators of chronic and acute foetal markers indicate the intrauterine condition and foetal. A biophysical profile is a better predictor than APGAR score to predict neonatal acidosis which may pose the risk of neonatal death [4]. Compromised foetus measure can intervene before developmental metabolic acidosis may also cause foetal death [5 – 8].

The advantage of BPP for the evaluation well-being of foetal with its non-invasive nature, wide acceptability, provision of complete evaluation and reduced time consumption reflects chronic and acute asphyxia response [9]. It also evaluates the neurobehavior of placenta and foetus status [10]. Doppler sonography and BPP score can effectively calculate IUGR of the foetus in different categories of risk [11].

Various parameters which are included in BPP are non-stress-test, USG volume of amniotic fluid measurement, absence and presence of foetal movements of breathing, gross movements of the body and tone of the foetal [12]. The non-stress test included foetal breathing movements, reactive foetal heart rate, the foetal activity of body movements, the qualitative volume of amniotic fluid, foetal muscle tone and amniotic fluid index. BPS (≤ 6) gestational weeks is

significantly associated with the early death of the neonate [13]. Therefore, this research was carried out to document BPP during pregnancy (≥ 36) gestational weeks and association of BPP with the assessment of neonatal outcomes.

MATERIALS AND METHODS:

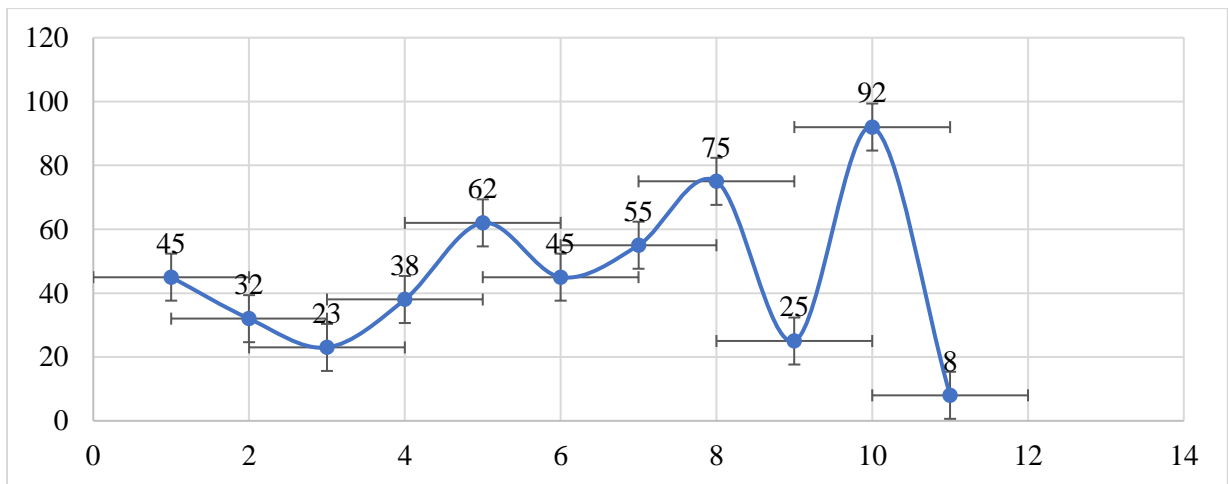
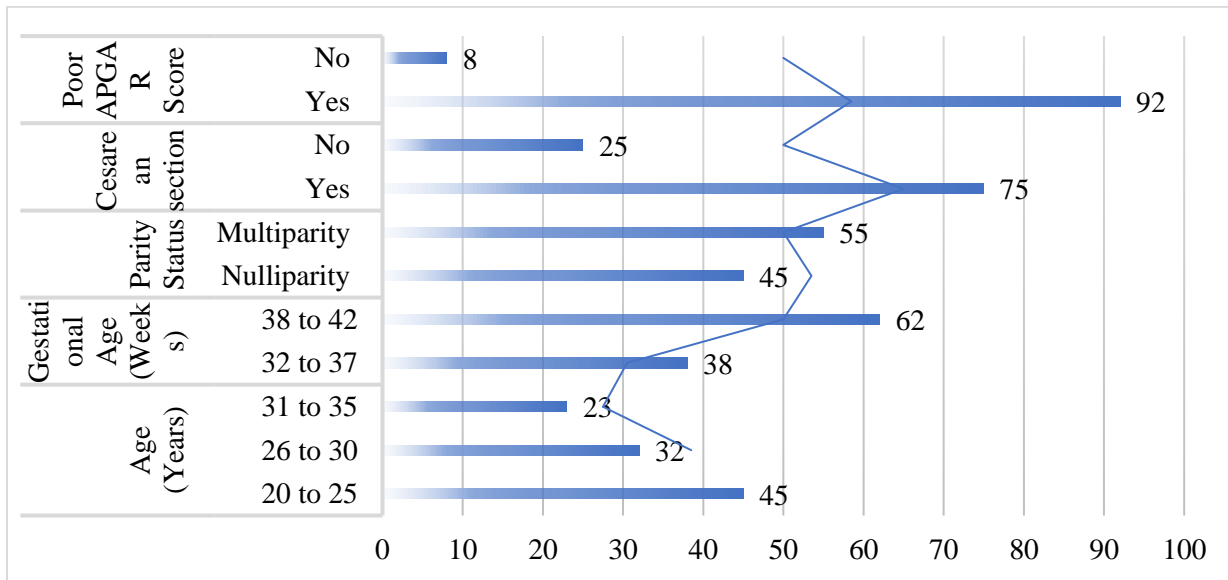
We carried out this cross-sectional research at Jinnah Hospital, Lahore (October 2018 to March 2019) on a total of one hundred patients who were enrolled in the age bracket of (20 – 35) years. The poor biophysical profile of patients was with a score under 8/10 out of five parameters as assessed through USG evaluation. The patients were screened with singleton pregnancy at 32nd to 42nd gestational week as calculated from the last menstruation cycle and duly confirmed through USG assessment. We also assessed poor APGAR and the cesarean section as adverse perinatal outcomes. We did not include any women with related medical disorders, hospitalized women for elective C-section and congenital fetal anomalies. Research commenced after ethical approval of the institution and informed consent of the patient. We also documented physical assessment and history of the patients. Patients were assessed for USG and biophysical profile for the confirmation of poor biophysical profile. We also followed the patients till the time of delivery. Patients were also evaluated for adverse perinatal outcomes such as poor APGAR score and cesarean section. A pre-designed Performa was used for the documentation of retrieved information. Collected outcomes were analyzed with the help of SPSS software.

RESULTS:

The research population consisted of 100 patients with a respective mean age and mean gestational age of (26 ± 43) years and (37.78 ± 2.66) weeks. There were 45, 32 and 23 patients respectively in age brackets of (20 – 25) years, (26 – 30) years and (31 – 35) years. Poor APGAR score was reported in 92 patients; whereas, 75 patients received cesarean section. Detailed outcomes about age, gestational age, parity status, cesarean section and poor APGAR Score are given in the tabular data. There were 38 patients in the (32 – 37) gestational week and 62 patients were in (38 – 42) gestational week. There were 45 Null-parity patients and 55 Multi-party patients. In the total 100 patients 75 received C-section; whereas, 25 did not. Poor APGAR score was reported in 98 patients and 8 patients did not present poor APGAR score.

Table: Outcomes of Variables

Variables		Number
Age (Years)	20 to 25	45
	26 to 30	32
	31 to 35	23
Gestational Age (Weeks)	32 to 37	38
	38 to 42	62
Parity Status	Nulliparity	45
	Multiparity	55
Cesarean section	Yes	75
	No	25
Poor APGAR Score	Yes	92
	No	8



DISCUSSION:

The BPP test is non-invasive in nature which marks the absence or presence of foetal asphyxia and risk of foetal mortality in the antenatal course. Measures can be taken with the identification of compromised foetus in order to intervene in foetal death before the progression of metabolic acidosis [14]. We made three age groups of the total patients. There were 45, 32 and 23 patients respectively in age brackets of (20 – 25) years, (26 – 30) years and (31 – 35) years. According to Sharami, high-risk pregnancies do not pose the age factor as a risk [15]. A number of patients were in the age bracket of (20 – 30) years.

Two groups were made in terms of gestational age respectively including 38 patients in (32 – 37) weeks and 62 patients in (38 – 42) weeks. Gestational age of less than 33 and more than 42 weeks also presented administration of maternal magnesium, membranes rupture, maternal glucose and labour which affected the biophysical profile of the patients [16]. Caesarean section was another key indicator of this particular research. Seventy-five patients underwent C-section in this research. Manandhar BL presented an abnormal increase in the BPS as a risk for the perinatal death in fifty percent of the patients (P-value 0.000). However, this research failed to mark any relation between neonatal morbidity and APGAR score; whereas, there was a significant relationship between C-section and BPS. The mentioned research presented 60% onset of C-section [17]. Poor APGAR score was observed at five minutes among 92% of the total patients. There was no positive association between APGAR Score at five minutes and BPP [17]. Hina showed a better correlation between the APGAR Score and BPP [18]. It is evident through documents that a normal biophysical profile refers to higher rates of perinatal survival among patients [19]. Very low score among fetuses presents higher rates of perinatal death, IUGR, increased fetal distress and neonatal hospitalization [20]. BPP is a more sensitive approach than other approaches such as non-stress test which has been reported in research with higher sensitivity and specificity of BPS. The negative predictive value was similar between two different approaches [21]. The chances of cerebral palsy are increased with a reduced BPP score [21].

CONCLUSION:

Adverse perinatal outcomes occurrence like poor APGAR score (at five minutes) was high among the patients showing poor biophysical profile. Occurrence of adverse perinatal outcome including APGAR score and cesarean section along with an evaluation of

biophysical profile produces a numerical score resultantly provides an objective assessment for the measurement of compromised foetal degrees. A biophysical profile is very important for those pregnancies which pose an increased adverse perinatal outcomes risk. It also provides vital assistance in the measurement of foetal well-being.

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