Volume : 3 | Issue : 10 | October 2014 • ISSN No 2277 - 8179

Research Paper

Role of Biophysical Profile in Case of Pregnancy Induced Hypertension

Medical Science

KEYWORDS : biophysical profile, pregnancy induced hypertension, morbidity mortality

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ABSTRACT

Biophysical profile is a widely used method of fetal surveillance based on composite assessment of acute and chronic markers of fetal condition. .Present study is an attempt to find out usefulness of biophysical profile in management of cases with pregnancy induced hypertension.

Study design: descriptive prospective study conducted at tertiary health care centre

Subjects: 50 cases of pregnancy induced hypertension

Duration: 1st june 2013 to 31st may 2014

Results :In present study, 41 patients have favourable fetal outcome out of 42 who have favourable BPP score. Out of 08 cases having unfavourable BPP score 06 patients have unfavourable pregnancy outcome. Patients having favourable BPP score only one patient had unfavourable fetal outcome which was due to neonatal jaundice and septicemia.

Conclusions: Biophysical profile can guide us for timely intervention & thus, helps us in reduction of morbidity and mortality of fetus in pregnancy induced hypertension.

INTRODUCTION :

Biophysical profile is a widely used method of fetal surveillance based on composite

Assessment of acute and chronic markers of fetal condition. These markers include fetal body movement, fetal breathing, fetal tone, amnionic fluid volume, and non stress test .Present study is an attempt to find out usefulness of biophysical profile in management of cases with pregnancy induced hypertension. With critical observation, timely intervention and sympathetic care a successful and happy outcome can be achieved in pregnancies induced hypertension[12378]

AIMS AND OBJECTIVES

- To analyse biophysical profile as a method for antepartum fetal surveillance among patients with PIH.123578
- To analyse sensitivity, specificity, usefulness and drawbacks of biophysical profile as a method for routine use in patients with PIH.
- To assess the usefulness of this high tech. procedure for decision INSTRUMENTATION, MATERIALS AND METHODOLOGY

The study was conducted at the tertiary health care centre in ahmedabad on role of biophysical profile in case of pregnancy induced hypertension. Patients with hypertension b.p > 140/90 mmhg with or without edema feet and proteinuria in present pregnancy were selected for this study. Real time ultra sonography machine and NST machine are used for performing bio physical profle scoring .After obtaining complete history, involved risk factors were identified, baseline investigations performed (i.e. Blood group Rh, CBC, Urine complete, blood sugar) and specific investigations for specific risk factor were carried out like renal function tests, liver function tests, plasma fibrinogen level, bleeding time, clotting time etc. making in modern obstetric practice.

TECHNIQUE:

Fetal biophysical profile was performed after 30-32 weeks of pregnancy in patients having pregnancy induced hypertension. There are 5 components to be observed for fetal biophysical profile.[23468]

CRITERIA FOR CODING OF FETAL BIOPHYSICAL VARIABLES AS NORMAL OR ABNORMAL[1234678]

Biophysical Variable	Normal (Score=2)	Abnormal (Score=0)
Fetal Breathing movement (FBM)	Atleast one episode of FBM of at test 20 sec. duration in 30 min. observation	Absent FBM or no episode more than 20 sec. in 30 min. observation.
Gross Body movement	At least 2 discreate body / limb movements in 30 min. observations (episodes of active continuous movement considered as single movement)	Two or less episodes in 30 ;min. observation.
Fetal Tone	At least one episode of extension with return to flexion of fetal limb/trunk, (opening and closing of hand, considered normal tone)	Slow extension with return to partial flexion OR Movements of limb in full extension OR Absent fetal movement OR Partiality open fetal hand.
Reactive fetal heart rate (FHR)	At least 2 episodes of FHR acceleration of >15 beats/min (bpm) associated with fetal movements in 20 minutes.	Less than 2 episodes of acceleration OR Acceleration < 15 beats/min (bpm) in 20 minutes.
Quantitative Amniotic Fluid volume (AFV)	At least one pocket of fluid that measures at least ≥ 2 cms in vertical axis	No fluid pocket OR Largest pocket < 2 cm in vertical axis.

FREQUENCY OF TESTING: BPP is done on a weekly basis except in severe pre eclamptic patients who are seen atleast twice weekly and if needed daily.[1257]

DURATION OF OBSERVATION TIME : In most of cases it takes approximately 8-10 minutes and in few cases full 30 minutes observation is required.[234567]

OBSERVATION AND DISCUSSION. Majority of patients belong to the age group 21-25 years. 28 out of 50 patients were primigravida. In 43 patients BPP scoring was performed once. In 7 cases of severe PIH with associated other high risk factors

Volume : 3 | Issue : 10 | October 2014 • ISSN No 2277 - 8179

it was performed for two or more times .Out of 50 patients 05 patients had non reactive NST. 12 patients had no episode of breathing lasting for 30 seconds in 30 minutes duration. 06 patients had less than two body movement in 30 minutes period

TABLE-1 FAVOURABLE PREGNANCY OUTCOME IN FAVOURABLE BPP SCORING.

BPP Scire	Total No. of patients	Patients with favourable outcome	Percentage of specificity
8 + NST not done 6 + NST reactive	24 18	24 17	100.0 94.44
Total	42	41	97.62

41 patients have favourable fetal outcome out of 42 patients have favourable BPP score. The specificity of BPP is 97.62% in this study.

TABLE-2 UNFAVOURABLE PREGNANCY OUTCOME WITH FAVOURABLE BPP SCORING.

BPP Score	Patients with favourable BPP	Patients with Unfavourable	False Positive Rate
8 + NST not done 6 + NST reactive	24 18	00 01	00.00 05.58
Total	42	01	02.38

In a single case unfavourable pregnancy outcome was there out of 42 cases having favourable BPP. That was due to neonatal jaundice and septicemia. So, there is 2.38% false positive result in this study.

TABLE-3 UNFAVOURABLE PREGNANCY OUTCOME IN UNFAVOURABLE BPP SCORING.

BPP Score	Patients with Unfavourable BPP	Patients with Unfavourable Outcome	Percentage of sensitivity.
0 2 + NST Non Reactive 4+NST Non Reactive 4+NST Reactive 6+NST Non Reactive	00 01 03 03 01	00 01 03 02 00	00.00 100.00 100,00 66.67 00.00
Total	08	06	75.00

Out of 08 cases having unfavourable BPP score 06 patients have unfavourable pregnancy outcome.

3 – Respiratory distress syndrome
2- Birth asphyxia
1- Neonatal jaundice and septicemia

So, the sensitivity of BPP in this study is 75%

Table 4 FAVOURABLE PREGNASNCY OUTCOME WITH UNFAVOURABLE BPP SCORING.

BPP Score	Patients with Unfavourable BPP	Patients with favourable Outcome	Percentage of sensitivity.
0 2 + NST Non Reactive 4+NST Non Reactive 4+NST Reactive 6+NST Non Reactive	00 01 03 03 01	00 00 00 01 01	00.00 00.00 00,00 33.00 100.00
Total	08	02	25.00

Out of 8 patients having unfavourable BPP score 2 patients have favourable pregnancy outcome. So **false Negative** rate is **5**% in this study. Out of 53 newborns, 46 had uneventful neonatal period and 07 had early neonatal death.

BPP specificity is 97.62% (Table-1) and sensitivity is 75.00% (Table-3)

False Positive rate 2.38%(Table-2) False Negative rate 25.00% (Table-4)

CONCLUSIONS:

- Biophysical profile is very safe, convenient, non hazardous, simple to perform, non-invasive, noontime consuming and can be done on an outdoor basis.
- If timely performed due to high specificity it can decrease the morbidity and mortality in newborn.[123478]
- If BPP found normal, it can prevent unnecessary intervention, early induction and caesarean section and thus also prevents iatrogenic prematurity.[2367]
- Availability of fetal biometric measurement and ruling out malformations were additional benefits obtained by performing this test.[1238]

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