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A study on bad obstetrics history-with special emphasis on etiological high-risk factors

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Abstract
Bad Obstetric History-is a challenging condition for both the couple and the attending obstetrician. Despite thorough investigation, a large number of such cases remain etiologically 'unexplained'. This hospital based, retrospective, analytical study was conducted to evaluate the risk factors-both maternal and fetal and probable etiological factors in patients with Bad Obstetric History.

Keywords: bad obstetric history, pregnancy loss, neonatal outcome, high risk pregnancy

Introduction

A pregnancy loss can be a challenge for both the couple and the attending obstetrician- more so if it is recurrent [1, 2]. In women with Bad Obstetric History, the underlying contributing factor is pinpointed in only about 40-50 % cases and the rest are clubbed under 'unexplained' group in spite of detailed evaluation [1, 2, 3]. Antenatal women known as high risk for BOH are – history of ≥ 2 consecutive spontaneous miscarriages, Intrauterine Fetal Death and still births, Fetal Growth Restriction or fetal congenital anomalies and should be monitored accordingly [1, 2]

The worldwide incidence of BOH is said to be around 1-2 % [1, 2, 3] with a wide variation across different geographical areas. Studies have established the fact that any given pregnancy has a probability of ending in miscarriage is approximately 12-15 % [1, 2, 3, 4]. The risk of miscarriages increases with each miscarriage- 30 % after 2 losses, 33% after 3 losses among patients without history of a live birth. (3,4). Therefore it is very important to evaluate the patients with 2 pregnancy losses and no prior live births so as to understand the cause of BOH and treat accordingly. The etiological factors of BOH is said to be multi-factorial including chromosomal abnormalities in the parents, anatomical or structural uterine anomalies, endocrinal imbalance, thrombophillias - inherited and acquired, APLA syndrome, immunological and environmental factors. However, almost one third of such cases do not have a known underlying cause, and are grouped under 'unexplained' etiology [1, 5]. This study was undertaken to evaluate both the maternal and fetal risk-factors and outcomes of pregnancies with Bad Obstetric History.

Materials and Methods

- **Type of study:** Hospital based, retrospective analytical study of Antenatal women with BOH attending Obstetrics-OPD.
- **Study Period:** 2 years (June 2019- June 2021)
- **Inclusion Criteria**
- ≥2 consecutive spontaneous miscarriages
- ≥2 early neonatal deaths
- ≥2 Stillbirths
- ≥2 IUFD
- ≥2 FGR (IUGR)
- ≥ 2 congenital malformations in fetus
- Combination of any ≥2 factors of the above

- **Exclusion Criteria**

Induced Abortions / MTP

50 Patients fulfilled the inclusion and exclusion criteria and were enrolled in the study after obtaining proper, written consent.

All the maternal high risk factors including medical disorders of pregnancy and other underlying causes were noted and analyzed. Fetal outcomes especially prematurity, Fetal Growth Restriction, anomalies (structural / chromosomal), inborn errors of metabolism (IEM), stillbirth, mode of delivery, birth weight, fetal distress, Meconium Stained Liquor, APGAR score at birth, NICU admission etc were noted, tabulated and statistically analyzed by using SPSS-software.

Results and Observations

The following results were observed from the present study. They are represented in the following tables:

Table 1: Maternal Parameters

Variables	Mean	SD (±)
Age (years)	27.56	2.89
BMI (kg/m$^{2)}$	23.25	2.06
Parity	1.25	0.71
Birth weight (kg)	2.76	0.45

Table 2: Maternal Complications (underlying etiological factors)

Condition	Number (n)	Percentage (%)
APLA Syndrome	4	6.00
Hypothyroidism	15	30.00
Hyperthyroidism	2	4.00
GDM	7	14.00
Pre Eclampsia	10	20.00
TB	2	4.00
Hyperprolactinemia	6	12.00
Luteal Phase Defect	1	2.00
Parental Chromosomal Abnormalities	0	0.00
PROM	8	16.00
APH	3	6.00
Malpresentation	9	18.00
Cervical Incompetence	5	10.00
Inborn Error of Metabolism	1	2.00
Unexplained	10	20.00

Table 3: Mode of Delivery

Mode of Delivery	Number (n)
▪ Vaginal	27
Spontaneous	20
Instrumental:	7
{Forceps	4}
{Vaccuum	3}
▪ LSCS	29
{Elective	12}
{Emergency	17}
▪ Vaginal Birth After Cesarean (VBAC)	4
Total	50

Table 4: Fetal Outcome

Variable	Number (n)
Preterm Birth	13
IUGR/FGR (Fetal Growth Restriction)	4
Stillbirth	0
Meconium Stained Liquor (MSL)	16
Neonatal Death	1
NICU admission	19
Low Birth Weight (LBW)	14

Discussion

In our study, we attempted to evaluate the underlying etiological factors in all our patients with BOH. In around 40-50 % no etiology was found (unexplained). Even in couples with no identifiable underlying cause, only 50-70 % pregnancies become viable and successful [1, 2].

In our study, 10.5 % women had no underlying identifiable medical condition contributing to their BOH. In our study, 28.00 % babies were Low Birth Weight. Anand *et al* reported LBW in most of the patients with BOH with 4 times more chances of Low Birth Weight (including IUGR and Preterm Birth) [6].

We report hypothyroidism (overt & subclinical) in 15 patients (30.00 %) and 4 % had hyperthyroidism. The overall worldwide incidence of hypothyroidism contributing to BOH is estimated to be 1-10 % [1, 7].

We found 10 patients (20.00 %) patients had hypertension and a study by Deodhar *et al* and Surkan *et al* reported HDP in 25.00 % and 32 % of patients with BOH [1, 9, 10].

5 out of 50 patients were found to have past history of mid trimester abortion suggestive of cervical insufficiency and were thus given prophylactic Modified McDonald's cervical encirclage. APLA syndrome was diagnosed in 4 patients (8.00 %). APLA syndrome has been established as an etiological factor in 10-40 % of BOH cases worldwide.

Further evaluation of NND of unknown cause revealed the inborn errors of metabolism like Isovaleric acidemia and fatty acid oxidation defect in 4 % of patients in our study.

In our study only 31 patients (62 %) had an identified underlying condition responsible for BOH most probably and almost 19 patients (38 %) were grouped under the 'unexplained' category.

Conclusion

Bad Obstetric History especially $\geq$ 2 recurrent spontaneous miscarriages require detailed evaluation so as to not only find out identifiable risk factor and underlying causes but also to prevent future adverse pregnancy outcomes. A large chunk of such cases remain 'unexplained' and further in depth research is required to unravel the mystery in such cases. Recent areas of interest are male factors contributing to Recurrent Pregnancy Loss (RPL) especially role of paternally expressed genes in trophoblastic invasion and placental proliferation which may affect the pregnancy in early embryogenesis etc.

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