

Risk Factors for Adverse Outcome in Pregnant Women with Obstructed Labor.

Dixit Thapa B¹, Regmi MC¹, Rai R¹

¹Department of Obstetrics and Gynecology, BP Koirala Institute of Health Sciences, Dharan, Nepal

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Aims: The aim of the study was to assess the risk factors for adverse outcomes in pregnancy with obstructed labor.

Methods: It was a prospective descriptive study conducted at BP Koirala Institute of Health sciences (BPKIHS). The patients with obstructed labour were managed and followed up until delivery and six weeks postpartum from Jan to Dec 2012.

Results: There were 57 (0.6%) cases of obstructed labour out of 9500 deliveries. The main cause was cephalopelvic disproportion in 36 (63.2%). The majority of the cases were from rural areas, low socioeconomic status, non salaried and illiterate. Risk for maternal mortality, peripartum hysterectomy and perinatal mortality as adverse outcomes was significantly associated with low socioeconomic status (AOR 12.5, P=0.02) and literacy status (AOR 21.9, P=0.001). If only the risk of perinatal mortality is taken as an adverse outcome, it is significantly associated with booking status (AOR 7, P=0.001), low socioeconomic status (AOR 9.62, P=0.037) and literacy of the patient (AOR 15, P=0.001). Perinatal mortality rate was 100 per 1000 live births in women with obstructed labour. The case fatality rate was 1.2%.

Conclusions: Individual socio-demographic and health system factors are strongly associated with obstructed labor.

Keywords: maternal mortality; obstructed labor; perinatal mortality; peripartum hysterectomy

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INTRODUCTION

Labor is said to be obstructed when in spite of good uterine contractions, the progress of labor comes to a standstill due to mechanical factors causing obstruction to delivery and without external assistance spontaneous delivery is not possible.^{1,2}

It comprises one of the five major causes of maternal morbidity and mortality in developing countries.^{3,4} It accounts for approximately eight percent of maternal deaths globally,^{5,6} 75% of spontaneous rupture of uterus during labor^{7,8} and 80% of genital fistula seen in developing countries.⁹ Incidence in developing countries is about 1-5% depending on health care and transport facilities available.^{10,11,12} and an important cause of perinatal mortality.

The main obstetric causes of obstructed labour in low income countries include cephalopelvic disproportion, malposition and malpresentation and fetal anomalies like hydrocephalous.¹³ The chain of factors affecting the outcome of obstructed labour in low-income settings includes both cultural and socio-

economic factors. Adherence to traditional childbirth practices and individual beliefs as well as poverty restricting the family's ability to pay for transport is directly related to delay in seeking skilled care at birth. In our country the childhood marriage, teenage pregnancy and grand multiparity are common; who are high risk for cephalopelvic disproportion and more delivery takes place outside the hospitals. So obstructed labor is expected to be a common problem of our obstetric practice.¹⁴

No study had been conducted in BPKIHS regarding this subject. So this study had been designed to have an insight in this condition as the centre is referral centre for all the complicated obstetric conditions of the region. Obstructed labor is associated with different adverse maternal and fetal outcomes. This study was designed to know the risk factors for adverse outcomes in obstructed labor.

METHODS

It was prospective descriptive study done in patients who were admitted in BPKIHS with diagnosis of obstructed labor in 2013. All cases with clinical diagnosis of obstructed labor after 28 weeks period of gestation without co-morbid medical conditions were taken.

Uterine rupture was assessed and managed according to hospital protocol. Obstruction was released either

CORRESPONDENCE

Dr. Baburam Dixit(Thapa)
Assistant Professor, Department of Obstetrics and Gynecology
BP Koirala Institute of Health Sciences, Dharan, Sunsari, Nepal
Phone Number: 9842352481,
E mail address: baburamdixit@yahoo.com

by vacuum assisted vaginal delivery (VAVD) or Cesarean section. Foley catheter was left in situ for 14 days postpartum and followed up till six weeks.

Data was collected in pre designed Proforma and expressed as frequencies, percentages, mean and standard deviation and recorded in tabular form, histogram and pie charts. Crude odds ratios (COR), adjusted odds ratios (AOR) and their 95% confidence intervals (CI) were calculated. Kaplan and Mayer coefficient was used to see the association between the risk factors and adverse outcomes of obstructed labor.

Data analysis was done by using SPSS software version 11. Chi square test was used for comparison of data for statistical significance. A p-value of < 0.05 was taken as significant.

RESULTS

During the study period, total number of deliveries was 9500, out of which 57 ended up with obstructed labor, the incidence being 0.6 %. Among the 57 women who presented with obstructed labor 61% were aged between 20 to 29 years while 51% were nulliparous. Majority of them were from rural areas (82.5%) with low socioeconomic status 45(78.9%), non salaried 51(89.5%) and illiterate 34(59.6%) [Table-1].

Table 1: Sociodemographic characteristics (n=57)

Characteristics	n(%)
Age (years)	
15-19	10(17.5)
20-29	35(61.4)
≥30	12(21.1)
Parity	
Primi	29(50.9)
2-4	18(31.6)
>4	10(17.5)
Literacy	
Illiterate	34(59.6)
Literate	23(40.4)
Occupation	6(10.5)
Salaried	51(89.5)
Unsalariated	
Socioeconomic status	
Low	45(78.9)
Not low	12(21.9)
Residence	
Rural	47(82.5)
Urban	10(17.5)

The most common cause of obstructed labor was cephalo-pelvic disproportion (63.2%); 75.4% underwent Cesarean section (4 four had uterine rupture), 14.1% laparotomy and 10.5% vacuum extraction.

Maternal complications observed among the women with obstructed labor were postpartum hemorrhage (10.5%), ruptured uterus (17.5%), puerperal pyrexia (24.5%), bladder injury (5.2%), and vesico-vaginal fistula in one patient. Hysterectomy was required in eight patients and three women died as a result of obstructed labor (5.2%). There were 22 (38.6%) perinatal mortality. [Table 2]

Table-2: Maternal complications (n=57)

Complications	n(%)
Postpartum hemorrhage	6(10.5)
Ruptured uterus	10(17.5)
Hysterectomy	8(14)
Bladder injury	3(5.2)
Puerperal pyrexia	14(24.5)
Wound infection	6(10.5)
Broad ligament hematoma	1(1.7)
Vesico-vaginal fistula	1(1.7)
Maternal mortality	3(5.2)

The study showed that the patient who are non salaried, unsupervised and are from rural area have higher odds of having adverse outcomes (maternal mortality, perinatal mortality, hysterectomy) but are not statistically significant whereas low socioeconomic status (OR 12.5, P=0.02) and illiteracy (OR 21.9, P=0.001) are statistically significant. [Table 3]

Table -3: Association between socio-demographic characteristics and adverse outcomes (maternal mortality, hysterectomy and perinatal mortality in composite)

Charac teristics	Category	Group Adverse normal	OR (95% CI)	P value
Occupation	Non salaried	24 27	4.44 (0.484-40.7)	0.187
	Salaried	1 5		
Supervision	Unsupervised supervised	17 4 8 28	14.8 (3.8-56.9)	0.128
Residency	Rural	23 24	3.83 (0.735-19.9)	0.111
	urban	2 8		
Socio economic status	Low	24 21	12.5 (1.49-105.7)	0.02
	Middle	1 11		
Literacy	Illeterate	23 11	21.9 (4.35-110.7)	0.001
	Literate	2 21		

The study showed that unsupervised pregnancy (OR 7, P=0.001), low socioeconomic status (OR 9.62, P=0.037) and illiterate women (OR 15, P=0.001) were at a statistically significant higher risk of having perinatal deaths as an adverse outcome. However, women with obstructed labor who are non-salaried and who are from rural areas have higher chance of perinatal mortality but not statistically significant. [Table 4]

Table -4: Association between socio-demographic characteristics and perinatal mortality

Characteristics	Category	Group	OR (95% normal CI)	P value	
Occupation	Non salaried	22	29	1.76 (0.53-38.4)	0.99
	Salaried	0	6		
Supervision	Un supervised	14	7	7.00 (2.10-23.24)	0.001
	Supervised	8	28		
Residency	Rural	20	27	2.96 (0.567-15.48)	0.198
	urban	2	8		
Socio economic status	Low	21	24	9.62 (1.145-80.99)	0.037
	Middle	1	11		
Literacy	Illeterate	20	14	15.0 (3.019-74.53)	0.001
	Literate	2	21		

DISCUSSION

The incidence of obstructed labor in our study was 0.63 %. However, studies conducted elsewhere in Africa have reported incidence rates of between 0.9% - 7%,^{2,15} this was lower than 2.3% reported by Dutta¹⁶ in 1979, 1.27% by Daff Allah et.al¹⁷ from Sudan in 2003. There is as high as seven percent

in a retrospective study done at Jimma University Specialized Hospital, Ethiopia¹⁸ and also less than other studies of Adhikari et al,¹⁹Anjum Ara²⁰ and Shahida et al.²¹

The main obstetric causes of obstructed labor in our study were cephalo-pelvic disproportion (63.2%), malpresentation (17.6%) and malposition (19.3%) which have also been reported by other authors elsewhere.²

Our study provides baseline information on the individual socio-economic and sociodemographic and health system factors associated with obstructed labor and its adverse outcomes which is similar to study conducted by Kabakyega et al²² in south western Uganda. In our study, the main maternal complications observed were ruptured uterus, puerperal sepsis, bladder injury, postpartum hemorrhage and fistulae and are similar to what has been reported by other authors.^{11,23}

Moreover, we found out that adverse outcomes of obstructed labor such as perinatal death and maternal mortality was strongly associated with socioeconomic status, supervised pregnancy, literacy occupation and residency. Resource poor women may not be able to pay the money required for obstetric emergency and therefore face delay I and II. The association between low socio-economic status and obstructed labor has also been reported by other authors.²⁴⁻²⁶

CONCLUSIONS

Obstructed labor remains a major obstetrical problem. Adequate antenatal care and proper care at delivery could prevent it. Individual socio-demographic and health system factors are strongly associated with obstructed labor and its adverse outcome in country like Nepal.

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