The Professional Medical Journal
www.theprofesional.com

ORIGINAL PROF-2733

OBSTRUCTED LABOR;
RISK FACTORS & OUTCOME AMONG WOMEN DELIVERED IN A TERTIARY CARE HOSPITAL

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Article received on:
15/12/2014
Accepted for publication:
16/03/2015
Received after proof reading:
06/05/2015

ABSTRACT… The women of developing countries are at risk of pregnancy-related complications including pre-eclampsia/ eclampsia, obstructed labor, sepsis etc. Obstructed labor results due to three delays while woman is full term & is in labor. If detected and managed early and correctly, the pregnancies can be made safe and may result in birth of healthy babies. **Objectives:** (1) To assess frequency of obstructed labor among pregnant women. (2) To determine socio-demographic risk factors associated with obstructed labor among study population. (3)To determine outcomes of obstructed labor among pregnant women. **Study Design:** It was a hospital based descriptive cross sectional study. **Period:** Two months. **Setting:** Department of Gynaecology and Obstetrics units I, II and III of Liaquat University Hospital (LUH) Hyderabad. **Methods:** To estimate the frequency, risk factors & outcomes of obstructed labor as of third trimester adverse pregnancy outcomes & to seek association of this adverse pregnancy outcome with the socio-demographic characteristics of the pregnant women i.e. their age, residence, parity, level of education & socio economic class. **Results:** Out of total six hundred & nine women enrolled in the study, only 22 (3.61%) were in obstructed labor. 63.64% of them were of age > 30 years. More than 60% women in obstructed labor had reported from rural areas; and more than eighty percent of them were illiterate & belonged to lower socio-economic class. Only 4.55% of the women in obstructed labor were the booked cases. All the cases of obstructed labor were at full term. Cesarean section was done on 90.90% women. Not a single maternal mortality was reported among women enrolled in the study as obstructed labor. **Conclusion:** Neglected obstructed labor is a major public health issue. It can be avoided by addressing various socio-demographic determinants of pregnant women.

Key words: Obstructed labor, risk factors, and outcomes.

Article Citation: Shaikh SR, Memon KN, Usman G. Obstructed labor; risk factors & outcome among women delivered in a tertiary care hospital. Professional Med J 2015;22(5):615-620.

INTRODUCTION

Maternal health is the basic right of every woman the reproductive years of her life. It encompasses the periods not only during pregnancy, but also during childbirth and the postnatal period. It necessitates the provision of services for birth control, antenatal, natal and postpartum care. The provision of such services helps in reducing maternal morbidity as well as mortality.[1] The complications of pregnancy are reported as being at a very high rate & one woman dies from complications of childbirth approximately every minute throughout the world.[2] The world health report for the year 2005 also endorsed this fact by further narrating that poor maternal conditions accounted for the fourth leading cause of death for women worldwide, after HIV/AIDS, malaria, and tuberculosis.[3] Most maternal deaths and injuries are caused by biological processes, not from disease, which can be prevented and have been largely eradicated in the developed world. Worldwide, 50-71% of the maternal mortality occurs during labor or in the post partum period and majority of these are avoidable in this age of scientific and medical advancement.

Pakistan is a developing country with a population of more than 180 million. Low literacy and high fertility coupled with poor economy translates into high morbidity and mortality. Women and children are the most vulnerable segments of the population in terms of health. The maternal mortality ratio (MMR) is 340/100,000 live births. These statistics are among the worst in the world. A life time risk of dying due to pregnancy related causes for a Pakistani woman is 1 in 80 compared

to 1 in 61 in developing countries as a whole and 1 in 4,085 in developed countries.[4]

Complications of pregnancy & labor are the problems of public health importance which can be prevented if the underlying causes are addressed.[5] Neglected obstructed labor is a major cause of both maternal and newborn morbidity and mortality.[6] Labor is considered obstructed when the presenting part of the fetus cannot progress into the birth canal, despite strong uterine contractions.[7] It is a serious emergency situation as has been endorsed by World Health Organization, too.[8] Obstructed labor is a major cause of both maternal and newborn morbidity and mortality.[9] The most frequent cause of obstructed labor is cephalo-pelvic disproportion - a mismatch between the fetal head and the mother's pelvic brim. Some other causes of obstructed labor may be malpresentation or malposition of the fetus (shoulder, brow or occipito-posterior positions), locked twins or pelvic tumors etc.

OBJECTIVES

1. To assess frequency of obstructed labor among pregnant women.
2. To determine socio-demographic risk factors associated with obstructed labor among study population.
3. To determine outcomes of obstructed labor among pregnant women.

METHODOLOGY

Study setting & study design

A hospital based descriptive cross sectional study was conducted in Department of Gynaecology and Obstetrics units I, II and III of Liaquat University Hospital (LUH) Hyderabad. LUH is a tertiary level health care facility and it serves as the major referral center for other public, private hospitals and populations located within city as well as in neighboring towns.

Sample size & sampling technique

Consecutive sampling technique was adopted for data collection. In total, six hundred & nine pregnant women who fulfilled the inclusion criteria were registered for the study. The pregnant women who had crossed at least twenty four months of gestation, were admitted in the obstetrics wards & were willing to be part of study, were enrolled for the study. These women were followed till delivery to observe the mode of delivery as an outcome.

Duration of study

Two months.

DATA COLLECTION AND ANALYSIS

The pregnant women presenting with obstructed labor admitted in Department of Gynecology and Obstetrics Wards, LUH Hyderabad were undergone detailed interview. The obstructed labor was diagnosed by the duty doctors as per diagnostic protocols for obstructed labor. Those who were unwilling to participate were excluded from the study. A proforma was prepared in accordance with the objective of the study. Socio-demographic and clinical data were collected after informed consent. Data sources included interview from patients and their attendants as well as obstetric record. The maternal age, parity, residence, and women's educational & socio-economic status were the selected variables as risk factors for obstructed labor. The mode of delivery & maternal as well as new borne outcome of pregnancy was also recorded.

The data was entered in SPSS version 16.0 & the frequencies were calculated in percentages; the associations of qualitative variables to occurrence of obstructed labor were analyzed by applying Chi-square test; the continuous variables were analyzed by computing means & standard deviations. The p-value of ≤ 0.05 was taken as the level of statistical significance.

RESULTS

The total number of patients admitted through labor room in obstetric ward for the study period of two months was six hundred & nine; among them a total of ninety four cases presented with some adverse pregnancy outcome. Among them, twenty two cases of obstructed labor were diagnosed & registered. This makes 3.61% of the total women registered during third trimester of pregnancy while it amounts to 23.40% of the total

adverse pregnancy output enrolled in the study (p=0.04). 63.64% of the women in obstructed labor were of age > 30 years (Table No-I & Chart No: 1). Among women with obstructed labor, eleven were of parity 1-3 (50%), eight of parity 4-6 (36.36%), while only three (13.64%) women belonged to parity group of seven or more. (Chart No: 3). Higher parity showed a statistically significant association with occurrence of obstructed labor (p=0.02). More than 60% women in obstructed labor had reported from rural areas (p=0.01); and more than eighty percent of them were illiterate (p=0.01) & belonged to lower socio-economic class (p=0.02) (Table No:-I). Only 4.55% were the booked cases (Chart No: 2) who went into obstructed labor (p=0.06). All the cases of obstructed labor were at full term (Table No:-II). Regarding mode of delivery, 90.90% of these women had to undergo cesarean section (0.001). Not a single maternal mortality was reported among women in obstructed labor (Table No:-II). Among twenty cases of obstructed labor, 17 (77.27%) presented with cephalo-pelvic disproportion; among them fetal mortality was recorded in eleven cases (64.7%). Low parity & belonging to rural areas were found as the statistically significant risk factors (p= 0.02 & 0.05 respectively).

Socio-demographic factors	Obstructed Labor	
	Total No.	%
Age		
≤ 30 years	8	36.36%
> 30 years	14	63.64%
Residence		
Rural	15	68.18%
Urban	7	31.81%
Education		
Illiterate	18	81.82%
Primary	4	18.18%
Socio-economic class		
Lower(< Rs: 5000/ month)	19	86.36%
Middle(Rs:5000-15000/ month)	3	13.64%

Table-I. Socio-demographic factors related to obstructed labor

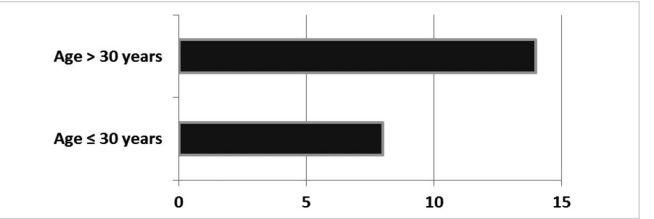

Chart-1. Relationship of age of pregnant women to occurrence of obstructed laborv

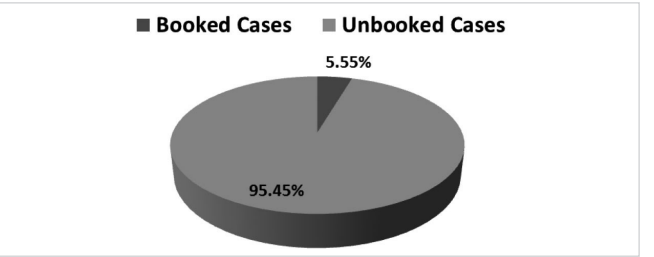

Chart-2. Comparison of booked & un-booked cases among total cases of obstructed labor

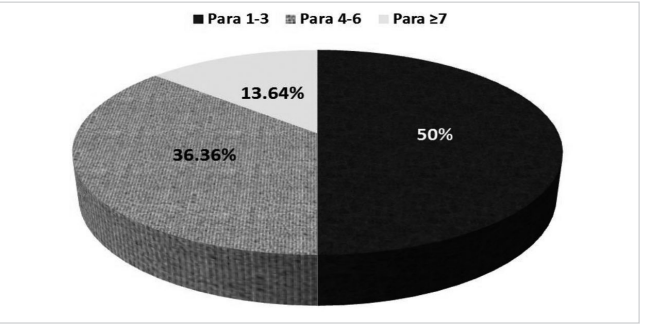

Chart-3. Relationship between parity & occurrence of obstructed labor

OUTCOMES	OBSTRUCTED LABOR	
Booking Status		
Booked	1	4.55%
Non-Booked	21	95.45%
Delivered at		
Full term	22	100.00%
Part term	0	0.00%
Mode of Delivery		
Instrumental Vaginal Delivery	2	9.09%
C-Section	20	90.91%
Maternal Mortality		
Yes	0	0.00%
No	22	100.00%

Table-II. OUTCOMES OF PREGNANCIES

DISCUSSION

Labor is considered obstructed when the presenting part of the fetus cannot progress into the birth canal, despite strong uterine contractions. Neglected obstructed labor (OL) is a major cause of both maternal and newborn morbidity and mortality. The problem is at higher rates in developing countries like Pakistan.

The total number of patients admitted through labor room in obstetric wards of LUH for the study period of two months was 609; among them only 22 (3.61%) cases of obstructed labor were registered. A study conducted in Peshawar revealed the incidence of obstructed labor as 4.52% which is quite comparable to our study[10]. The incidence of obstructed labor is much lower in the well developed countries ranging from 0.25-1.17% due to well functioning health care system in these countries[11]. The higher rate of reporting of obstructed labor in our setup throws light on the need of betterment of our health delivery system especially at door steps of common people. 63.64% of the women in obstructed labor were of age > 30 years & the mean & standard deviation for age of presentation with obstructed labor was 32.6 ± 1.4 years. Contrasting to our findings, another study revealed that young age group around 20 years was more significantly associated with occurrence of obstructed labor with calculated odds ratio of 1.21[12]. Another study with same objectives showed mean age of occurrence of obstructed labor as 27.7 ± 5.9, while majority of patients presenting with obstructed labor belonged to age group of 20 – 30 years[13]. This is in contrast to our findings. However Shah N et al found mean age of women near to that computed in our study i.e. it was 28 ± 6.2 years[14]. More than 60% of the women in obstructed labor in our study had reported from rural areas; and more than eighty percent of them were illiterate & belonged to lower socio-economic class. Belonging to rural areas, being illiterate & belonging to low socio-economic class, were statistically associated with occurrence of obstructed labor with p-values of 0.01, 0.01 & 0.02 respectively. These three factors actually work synergistically to act as strong determinants of obstructed labor as they make pregnant women more reluctant to seek ante-natal care services. These factors may also indirectly help health care providers to anticipate obstructed labor in pregnant women. This was evident in our study also as majority of the cases of obstructed labor were the unbooked cases & only 4.55% were the booked cases who ended up in obstructed labor. Mondal S et al concluded in a study that majority of the patients (87.86%) were from low socioeconomic group, 88.82% were from rural areas, and 16.16% were illiterate[15]. Majority of the rural masses prefer to be delivered at home in hands of dais. Khooharo Y et al found 87.5% of the cases of obstructed labor coming from rural areas after traditional trial of labor by dais, and local doctors.[13] The same were the findings of Tabassum R, too.[16] The formal maternal education has been proved as exerting positive impact on maternal health via better utilization of maternity services;[17] moreover place of child birth is proved to be a significant predictor of progress & outcome of pregnancy.[12] Chowdhury ME et al reported maternal educational status as a predictor of her reproductive health showing odds ratio of 0.30 (0.21-0.44) for maternal mortality for more than eight years of schooling compared with no schooling.[18] Most maternal deaths occur in poor countries because poor women have fragile health delivery system & the least access of women to skilled birth attendants.[19]

Regarding parity, fifty percent of the women belonged to parity group 1-3. Low parity showed a statistically significant association with occurrence of obstructed labor (p=0.02); it was endorsed by some of other studies with similar objectives, too. Khooharo Y et al reported higher rate of occurrence of obstructed labor among primigravidae.[13] Nulliparity or having been delivered only once before was highlighted as a strong predictor of obstructed labor[12]. However, a hospital based study conducted in Africa did not reveal any association of occurrence of obstructed labor to parity of the women.[20] Contrary to this, Rather S et al cite low parity as a risk factor for occurrence of obstructed labor.[21]

Regarding mode of delivery, 90.90% women presenting with obstructed labor had to undergo cesarean section & not a single maternal mortality was reported among women with obstructed labor. Mondal S also found cesarean section as the commonest mode of delivery (85.94%) among pregnant women with obstructed labor; while the remaining cases of obstructed labor were handled by instrumental deliveries.[15] Cesarean section was also observed to be the common mode of delivery as studied by Khooharo Y; too.[13] It is a fact that obstructed labor results from mismanaged pregnancies which are allowed to proceed to prolonged labor thus resulting in obstruction & necessitating operative management Therefore proper antenatal care, early diagnosis, and timely intervention may result in decrease in its incidence.

CONCLUSION

Obstructed labor has become almost obsolete in the developed world. However, it is still prevalent in our country due to illiteracy, ignorance, poverty and under utilization of the available health facilities. Addressing these socio-demographic determinants will certainly contribute towards reducing incidence of obstructed labor in our country.

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"Education is learning what you didn't even know you didn't know."

Daniel J. Boorstin

AUTHORSHIP AND CONTRIBUTION DECLARATION

Sr. #	Author-s Full Name	Contribution to the paper	Author=s Signature
1	Dr. Shazia Rahman Shaikh	Conceptualizing the topic, literature search data colllection, analysis and making zero draft.	
2	Dr. Khalida Naz Memon	Finalizing questionnaire, data collection, analysis, compliation of results & finalizing the draft.	
3	Dr. Gulzar Usman	Data collection, analysis, making zero draft.	