

Comparison of Feto-Maternal Complications in Booked and Unbooked Females Presenting at Time of Delivery in Sir Ganga Ram Hospital, Lahore

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ABSTRACT

Aim: To compare feto-maternal complications in booked and unbooked females presenting at time of delivery in a tertiary care hospital.

Study design: a comparative cross-sectional study.

Place and Duration of study: Obstetrics & Gynae Department of Sir Ganga Ram Hospital, Lahore, Pakistan, from June, 2011 to December, 2011.

Methods: 1400 cases; 700 cases in each group, was calculated with the help of WHO calculator and booked and unbooked cases were enrolled. Informed consent was obtained and demographic profile of patients like name, age, gestational age, parity was noted. Blood sample was obtained to assess the hemoglobin level of the patient and sent to laboratory of Ganga Ram hospital. If $Hb < 11g/dl$, then anemia was labeled. BP was noted on two occasions. If $BP > 140/90mmHg$ and proteinuria $> 2+$, then pre-eclampsia was labeled and if convulsion were present then eclampsia was labeled. Intrauterine fetal death was noted from early available scan or during delivery. Mode of delivery was noted as Cesarean Section or vaginal delivery. After delivery Apgar score at 1 min and 5 min was noted.

Results: The mean age of all patients was 26.72 ± 4.41 years. The mean age of females of booked and unbooked females was 26.99 ± 4.08 years and 26.45 ± 4.71 years respectively. The mean gestational age was observed as 37.35 ± 3.36 weeks. Mean gestational age in booked and unbooked cases was 37.47 ± 3.36 weeks and 37.23 ± 3.36 weeks respectively. There were 408 (29.1%) females presented in labor at pre-term stage of pregnancy while 992 (70.9%) females presented at term in active labor for delivery. Data was stratified for term and preterm delivery as this factor is an effect modifier.

There were 660 (47.1%) females with complication of anemia, out of which 168 were booked and 492 were unbooked. There were total 176 (12.6%) cases who had pre-eclampsia, out of which 60 were booked cases and 116 were unbooked cases. There were 188 (13.4%) cases that underwent cesarean section, out of which 60 were booked and 128 were unbooked. There were 104 (7.4%) delivered cases which showed poor Apgar score, out of which 32 were booked and 72 were unbooked.

Conclusion: Although the difference was insignificant but unbooked cases showed higher frequency of complications as compared to booked cases. More studies are required to overview more complications in unbooked cases so that the problem can be controlled.

Key words: Booked, unbooked, pre-term, pre-eclampsia, anemia, cesarean section, vaginal delivery

INTRODUCTION

Child birth is a rewarding event for majority of couples, yet it may turn into a nightmare by an unforeseen life threatening complication. WHO/ UNICEF estimated maternal mortality ratio in Pakistan to be 340/100,000 live births and perinatal mortality rate to be 90-100/1000 total births¹. Proper antenatal monitoring during first pregnancy helps in avoiding problems. Common problems seen in our un-booked primigravida patients result in poor perinatal outcome and maternal morbidity and mortality. All are avoidable complications and can be prevented through good antenatal monitoring,

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planned and supervised labour and puerperium. In developing countries, 52.6% women develop complications during labour and puerperium³.

In our country, 53.3% women report some complications during or following child birth.⁴ It has been reported that 82.5% cases of severe acute maternal morbidity and 88.6% of maternal deaths are in unbooked patients⁵. Unbooked mothers have a higher proportion of maternal intensive care unit admissions and perinatal deaths compared with the booked⁶. Obstructed labour and severe pre-eclampsia are more commonly seen in unbooked cases⁷. In developing countries, it is found that < 4 antenatal visits are a risk factor for post-partum hemorrhage⁸. Early antenatal booking and improved antenatal care is necessary for early diagnosis and

treatment of anemia⁹ As compaAntenatal care is largely a part of preventive medicine and has proved to be beneficial for both mother and the baby world over. Antenatal care has multiple benefits, which cumulatively result in significant reduction in the maternal and perinatal morbidity as well as mortality. The results are possible only in women who receive full antenatal care starting from the early days of pregnancy until delivery.

Maternal complications and poor perinatal outcome are highly associated with non-utilization of antenatal and delivery care services and poor socioeconomic conditions of the patient, with poorer outcomes in unbooked than booked patients. Adequate antenatal care and hospital deliveries enable obstetricians to diagnose complications at an early stage when intervention will bring about better results. Several studies have documented the positive influence of proper antenatal care and hospital deliveries.

This study was designed to find out the frequency of fetomaternal complications between booked and unbooked patients presenting at time of delivery in our hospital. Unbooked patients are at more risk of developing complications and most of the females presented at time of delivery in our set-up are unbooked and face such type of complications to control factors that adversely affect the health of mother and infant and burden of the hospital can also be reduced.

METHODOLOGY

It was a comparative cross sectional study with a purposive non-probability sampling done. This study was carried out in obstetrics & gynaecology Department of Sir Ganga Ram Hospital, Lahore, from June 2011 to December, 2011, for period of six months. 1400 Patients; 700 booked and 700 unbooked, who fulfill the inclusion and exclusion criteria were admitted through outdoor or emergency department of Sir Ganga Ram Hospital, Lahore. Informed consent was obtained and demographic profile of patients like name, age, gestational age, parity was noted. Blood sample was obtained to assess the hemoglobin level of the patient and sent to laboratory of Ganga Ram hospital. If $Hb < 11g/dl$, then anemia was labeled. BP was noted on two occasions. If $BP > 140/90mmHg$ and proteinuria $> 2+$, then pre-eclampsia was labeled and if convulsion were present then eclampsia was labeled. Intrauterine fetal death was noted from early available scan or during delivery. Mode of delivery was noted as Cesarean Section or vaginal delivery. After delivery Apgar score at 1 min and 5 min was noted. If it was < 7 , it was labeled as poor Apgar

score. All this information was recorded on pre-designed proforma.

Data was entered and analyzed by SPSS version 10. Mean \pm SD was calculated for age, gestational age. Frequency and percentages were calculated for anemia, preeclampsia/ eclampsia. cesarean section, Poor apgar score at 1 and 7 min and IUD. Both groups were compared for frequency of anemia, pre-eclampsia / eclampsia, cesarean section, poor Apgar score at 1 and 5 min and intrauterine fetal death by using chi-square test. P-value < 0.05 was considered as significant. Data was stratified for term and preterm deliveries to address the effect modifier.

RESULTS

There were total 1400 females presented in labor were enrolled in the study. They were divided into two groups according to the category as booked and unbooked. The mean age of all patients was 26.72 ± 4.41 years. Minimum age of females was 19 years and maximum age was 39 years (age range = 20years). The mean age of females of booked and unbooked females was 26.99 ± 4.08 years and 26.45 ± 4.71 years respectively.

The mean gestational age was observed as 37.35 ± 3.36 weeks with minimum and maximum gestational age as 21 weeks and 42 weeks respectively. Mean gestational age in booked and unbooked cases was 37.47 ± 3.36 weeks and 37.23 ± 3.36 weeks respectively. There was insignificant difference between both groups for gestational age of the patients presented for delivery. (p-value = 0.373)

There were 90(65.7%) females who had parity 0-1, 440 (31.4%) had parity 2-3 while only 40(2.9%) had parity 4-5. Similarly, 876(62.6%) had gravidity 1-2, 460(32.9%) had gravidity 3-4 and only 64 (4.6%) had gravidity 5-6. There were 1270 (90.9%) females who did not report any abortion while 128(9.1%) reported that they had history of 1-2 abortions.

There were 408 (29.1%) females presented in labor at pre-term stage of pregnancy, out of which 160 were booked and 248 were unbooked while 992 (70.9%) females presented at term in active labor for delivery, out of which 540 were booked and 452 were unbooked cases. There was significant difference between both study groups for time of delivery whether term or pre-term (p-value = 0.009).

Data was stratified for term and preterm delivery as this factor is an effect modifier. The mean gestational age of booked cases in preterm cases was 32.80 ± 3.97 weeks while in unbooked cases it was 32 ± 3.8 weeks. The mean gestational age of

booked cases in term cases was 38.85 ± 1.27 weeks while in unbooked cases it was 38.59 ± 1.27 weeks.

There were 660(47.1%) females with complication of anemia, out of which 168 were booked and 492 were unbooked while 740(52.9%) were non-anemic, out of which 532 were booked and 208 were unbooked cases. There was highly significant difference between both study groups. (p-value =0.000). Out of which 60 were booked and 128 were unbooked. 1212(86.6%) had normal vaginal delivery, out of which 640 were booked and 572 were unbooked cases. There was significant difference between both groups for type of delivery occurred (p-value=0.007).

There were 104(7.4%) delivered cases which showed poor Apgar score, out of which 32 were booked and 72 were unbooked. The difference was significant between both study groups for poor Apgar score and it showed that unbooked cases are at more risk of having poor Apgar score (p-value=0.042).

There were 104 (7.4%) delivered cases which showed poor Apgar score as < 7 at 1 minute, out of which 32 were booked and 72 were unbooked. The difference was significant between both study groups for Apgar score < 7 at 1 minute and it showed that unbooked cases are at more risk of having Apgar score < 7 at 1 minute after delivery (p-value = 0.042).

There were 104(7.4%) delivered cases which showed poor Apgar score as < 7 at 5 minute, out of which 32 were booked and 72 were unbooked. The difference was significant between both study groups for Apgar score < 7 at 5 minute and it showed that unbooked cases are at more risk of having Apgar score < 7 at 5 minute after delivery (p-value = 0.042)

There are 8 cases of IUD, out of them 7 were unbooked cases and 1 was a booked case.

DISCUSSION

The concept of antenatal care has grown progressively to become a universal component of obstetric care, not only in developed world, but also in the developing countries. This study reiterates the importance of proper antenatal care and delivery towards reducing fetal and maternal morbidity and mortality in Pakistan. Pregnancy and childbirth is a universally celebrated event.

Adequate antenatal care and hospital deliveries enable obstetricians to diagnose complications at an early stage when intervention will bring about better results. Pregnancy outcomes in unbooked mothers are significantly poorer than in the booked mothers, due to high preterm delivery rates, low birth weight babies, and a very high incidence of caesarean section rates. Unbooked women present late with

complications making surgical intervention inevitable because of fetal distress and prolonged labour. The higher incidence of antenatal complications such as anemia and pregnancy induced hypertension, in this study among the unbooked women are factors that lead to poor outcomes in infant and the mother.^{2,3}

Various studies have confirmed the positive influence of antenatal care on maternal and perinatal outcomes irrespective of other maternal characteristics, such as age and parity. Ekwempu, in a study on the influence of antenatal care on pregnancy, found that antenatal care was associated with a three-fold reduction in perinatal loss and virtual elimination of fetal loss from stillbirth.

Unbooked births are common in developing countries with 17% to 29% of hospital deliveries reportedly presented as unbooked emergencies. Skilled delivery rate is low.

In this study we included total 1400 females who were in active labor. They were divided into two groups according to the category as booked or unbooked as defined earlier. The mean age of all patients was 26.72 ± 4.41 years. This age range coincides with other studies³⁹. But in a study, Compared to booked mothers, unbooked mothers were younger in age (29.3 ± 6.08 vs 31.12 ± 4.80 years; $p < 0.001$)².

There were 992 females presented in active labor, out of which 540 were booked and 452 were unbooked. There were 408(29.1%) females presented in pre-term labor, out of which 160 were booked and 248 were unbooked which was significantly different. But in a study, unbooked mothers were twice as likely as booked mothers to deliver preterm babies^{23, 41}.

In present study, the frequency of anemia was significantly higher in unbooked cases [70.3%] as compared to booked cases [24%]. Nigerian study conducted by Owolabi reported that frequency of anemia is significantly higher among unbooked cases than booked cases. Among booked cases, anemia was present in 19% while among unbooked cases it was present in 39%². In a study, carried out in Egypt by Gonied, reported the significant difference in the frequency of anemia in booked versus unbooked cases as 18.78% versus 38.7% respectively²³.

In a Pakistani study carried out in Abbotabad showed anemia in all patients whether booked or unbooked ranging from mild to severe. In contrast, results of present study reported that frequency of severe anemia in few cases in both booked and unbooked cases. Resarchers observed anemia in 11.1% unbooked and 6.1% booked cases²⁴.

In present study, rate of pre-eclampsia was higher in unbooked cases (16.6%) as compared to booked cases (8.6%) and this was a significant

difference between both study groups. Nigerian study carried out by Owolabi showed that unbooked mothers had higher incidence of preeclampsia/eclampsia [7.9%] compared to booked mothers [2.1%]. Another study carried out in Abbottabad also reported significant difference between booked and unbooked cases for frequency of pre-eclampsia.^{2,13} While Egyptian study reported insignificant difference in pre-eclampsia between both booked and unbooked cases [booked: 2.2% vs. unbooked: 12.5% (p-value=0.093)]²³.

According to present study, C-section was significantly more common in unbooked cases (18.3%) as compared to booked cases (8.5%). Studies reported the frequency of c-section is significantly higher among unbooked cases as compared to booked cases. Egyptian study by Gonied reported c-section in 31.3% in unbooked cases and 12.9% in booked cases (p-value=0.000). Results of Chigbu study coincides with that of Gonied study. Study which is carried out in Nigeria by Owolabi, reported c-section in 61.2% unbooked and 42.3% booked cases.^{2,14,23}

One Pakistani study also reported that the frequency of C-section rate in un-booked patients was significantly higher (76.5%) as compared to booked patients (23.5%)¹³.

In present study, Poor Apgar score was found significantly higher among unbooked cases (10.3%) as compared to booked cases (4.6%) and it showed that unbooked cases are at more risk of having poor Apgar score. Other studies reported that frequency of poor Apgar score is very high and agrees with results of our study. Egyptian study by Gonied also reported that perinatal complication like poor Apgar score was higher in unbooked mothers (35%) as compared to booked mothers (16.5%). Babies of unbooked mothers were twice as likely as booked mothers to have asphyxia as indicated by an Apgar score of <7 at one minute and five minutes²³.

Owolabi in his study carried out in Nigeria also reported that poor Apgar score was higher in unbooked mothers (56.8%) as compared to booked mothers (18.2%)². Chigbu reported very vast difference between booked and unbooked cases for poor Apgar score. He reported poor Apgar score in 45.1% unbooked and 4.6% in booked cases¹⁴.

In agreement with findings in other studies, the results clearly showed positive correlations with maternal and fetal adverse outcomes. Pregnancy outcomes in the unbooked mothers are significantly poorer than in the booked mothers due to high preterm delivery rates, low birth weight babies, and a high incidence of caesarean section rates. However, we did not find any IUD [intrauterine death] in either group in present study.

CONCLUSION

Unbooked birth is common in developing countries and its associated unfavorable conditions are similar to what is already known in the literature. However, these conditions continue to threaten the survival of a new unbooked birth in the study setting. Strengthening perinatal health-care services through staff training and improved quality of health services is highly desirable to support the survival of unbooked births. On the other hand, appropriate interventional measures aimed at attaining zero percent unbooked birth need to be instituted. Unbooked cases showed higher frequency of complications as compared to booked cases. More studies are required to overview more complications in unbooked cases so that the problem can be controlled.

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