



ASSESSMENT OF NEONATAL OUTCOME IN BOOKED AND UNBOOKED PREGNANCY CASES IN A TERTIARY CARE CENTRE

Pranoy Dey	Professor, Department of Paediatrics. Assam Medical College and Hospital, Dibrugarh.
L. Lotha	Associate Professor, Department of Obstetrics and Gynaecology. Assam Medical College and Hospital, Dibrugarh.
Sawant Kumar Sahu	Senior Resident, Department of Obstetrics and Gynaecology. Assam Medical College and Hospital, Dibrugarh.
Rajlakshmi Borgohain*	Post Graduate Trainee, Department of Paediatrics. Assam Medical College and Hospital, Dibrugarh. *Corresponding Author

ABSTRACT

Majority of neonatal deaths occurs in low and middle income countries indicating poor quality of health services provided by the government of the respective countries. In a developing country like India, a high morbidity and mortality serves as a sensitive indicator reflecting the poor maternal and child health care services of the country. Most of the neonatal deaths can be attributed to avoidable factors which can be minimized by the effective utilization of antenatal services, early detection of high risk pregnancy and timely referral of these cases. The current study was conducted to determine the neonatal outcomes in booked and unbooked pregnancy cases in the tertiary care centre, Assam Medical College and Hospital, Dibrugarh.

METHODS: Close ended structured questionnaires were used to collect information from the parents (150 booked and 150 unbooked). Neonatal outcomes were categorised under groups of term and preterm, live birth and stillbirths, birthweight, Gestational age, iugr, large for gestational age APGAR score, NICU admissions and clinical course during hospital stay, course during first 28 days of life along with complications, if any are all taken into consideration.

RESULTS: During the study period 28.67% had low birth weight in booked cases and 41.33% had low birth weight in unbooked cases. The incidence of stillbirth and early neonatal deaths were 2%, 4% respectively in booked cases and 4.67%, 6% respectively in unbooked cases. Higher incidence of MSL, prematurity, birth asphyxia, respiratory problems, birth injuries, congenital malformations, infections and hyperbilirubinemia were seen in unbooked cases.

CONCLUSIONS: The inference derived from the study, showed that availability of antenatal care is directly proportional to the neonatal outcome. Thus unavailability or lack of proper medical attention during the pregnancy results in unfavourable neonatal outcomes which can be prevented by increasing the range of availability, utilization and effectiveness of maternal and child health services along with ensuring booking of all the pregnancy cases in our country.

KEYWORDS : Meconium Stained Liquor (MSL), hyperbilirubinemia, prematurity, stillbirth, birth asphyxia.

INTRODUCTION

Out of 130 million births worldwide in a year, 14 million die within first 28 days, out of which 3/4th die within first week and >1/4th die within 1st 24 hours of life[1]. To achieve UN Millennium Developmental Goal 4, strategies and sufficient effort focusing on neonatal mortality to reduce neonatal mortality by 2/3rd by the year 2015[2].

Among 52 lower middle income countries, India is on 12th position according to the report published by UNICEF on newborn mortality rate in 2018. However, with adequate and proper usage of health care services India managed to reduce the under 5 mortality by 66% in the last 25 years from 1990 to 2015[3]. According to SRS data of 2016 Assam has second highest infant mortality among the Indian states i.e 44 per 1000 live births[4].

Low birth weight is a well established risk factor for neonatal mortality which is defined as birth weight less than 2.5 kg[5]. Low birth weight and prematurity are important cause of perinatal mortality in developing countries. Apart from these, respiratory distress syndrome, birth asphyxia, congenital abnormalities etc have been found to be associated risk factors of neonatal mortality[6]. These are avoidable factors and effective utilization of antenatal services and early detection of high risk pregnancies and timely referral of these cases can help reduce neonatal deaths.

Though the government has been implementing various policies to reduce both maternal and neonatal mortality in order to intensify health care services uptake and promote

institutional deliveries, a number of socio demographic factors still exist in India which affect the utilization of ANC services in developing countries like India, such as difference in socio-economic status, rural – urban differences, prevalent prejudices and practices, availability of health care provider, level of women education, lack of adequate transportation /communication facilities, etc. Appraising the outcomes of neonates in booked and unbooked pregnancy cases is a prerequisite for determining the direct association of the uptake of health services and neonatal health. In addition to this, it would also help in formulating future health strategies leading to advancement in neonatal health status.

The raising neonatal morbidity and mortality in our country reflects the unawareness and unavailability of adequate health care services to all the corners of the country, so, it is of paramount importance to highlight the degree of association between the booking of all pregnancies and neonatal outcomes. The effectiveness of antenatal care can be measured by maternal and fetal outcome. With the above ideas the neonatal outcomes in booked and unbooked cases has been taken. The present study was conducted from 1st July 2018 to 1st June 2019 in the Department of Obstetrics and Gynaecology, Assam Medical College and Hospital.

METHODOLOGY

Study Design

Hospital based prospective study

Study Area

Department of Obstetrics and Gynaecology, Assam Medical

College and Hospital, Dibrugarh.

Study Period

One year (1st July 2018-1st June 2019)

Study Population

Pregnant women having gestational age more than 28 weeks ,both booked and unbooked cases attending the department of Obstetrics emergency of Assam Medical College and Hospital for delivery and who delivered at home or at periphery and are brought to the hospital for emergency obstetric care and upto 42 days post-delivery in our centre.Newborn babies delivered after completed 28 weeks of gestation and upto 7 days post-delivery.

Sample Size

Considering 95% confidence interval with the precision of 10% and by taking the finding of the study by Aggarwal S et al as the reference , the sample size of the present study was calculated to be 300 (150 in each group)

INCLUSION CRITERIA

1. Pregnant women having gestational age more than 28 weeks , both booked and unbooked cases, attending the department of obstetrics emergency for delivery and who delivered at home or at periphery and are brought to the hospital for emergency obstetrics care and upto 42 days postdelivery in our centre were included in the study.
2. Newborn babies delivered after completed 28 weeks of gestation and upto 7 days post delivery were included in our study.

Booked case

Booked cases were those who had minimum of at least 4 ANC's including early registration and 1st ANC at first trimester.

Unbooked Case

Unbooked cases were those who had none or less than 4 ANC visit.

Research methodology included retrograde recording of findings during antenatal visits.Through history taking ,complete physical and obstetrical examination followed by basic investigation like CBC ,blood grouping ,routine urine examination ,obstetrics ultrasonography,any case specific investigation as mandated by clinical condition of the patient ,management of the patient ,mode of delivery and indication for vaginal or LSCS are all documented.

Neonatal outcome which includes term and preterm, live and stillbirths , birth weight, gestational age ,IUGR ,large for age babies ,APGAR score ,NICU stay (if shifted to NICU) and course during hospital stay and complications associated with are all documented.Care of the newborn begins with positioning ,cleaning the airways ,drying and cleaning the baby and cutting the umbilical cord .

Ethical clearance-Ethical clearance was obtained from institutional ethics committee(Human),Assam Medical College and Hospital, Dibrugarh.

Informed Consent-

Details of the study was explained to the subjects and informed consent was obtained from the concerned patient or the legal guardian.

Statistical Analysis-

All data was compiled and analyzed using INSTAT graphpad.Discrete data are presented as numbers(%) and analyzed using Chi square test and Fisher's test.Statistical significance was fixed at 5%.

RESULTS-

The study consisted of 300 cases which were divided into groups of booked and unbooked cases .94% of booked cases delivered term babies where 6% were preterm.Out of the unbooked cases 90% delivered term babies and 10% delivered preterm babies.

Among 150 booked cases, 28.67% has low birth weight and 4% had early neonatal deaths and 2% stillbirths.Among 150 unbooked cases 41.33% had LBW, 6% early neonatal deaths and 4.67% stillbirths.(Table 1)

Out of 150 booked cases, 141(94%) neonates were term and 9(6%) were preterm.Out of 150 neonates in unbooked cases, 135(90%) were term and 15(10%) were preterm.(Table 2)

Among booked cases 10% had meconium stained liquor , 4% FHR abnormality, 2% birth asphyxia ,4% respiratory problems, 0.67% birth injury ,1.33% congenital anomaly ,2% hyperbilirubinemia and 1% infection .Among the unbooked cases 16% had meconium stained liquor, 6% FHR abnormality,6.67% birth asp hyxia, 5.33% respiratory problems,1.33% birth injury, 1.33% congenital anomaly, 3.33% hyperbilirubinemia and 2% infection.(Table 3)

APGAR score at 1 minute was found to be 7-10 in 83.33% of booked cases and 78.67% of unbooked cases.APGAR score at 5 min was found to be 4-6 in 5.33% of booked cases and 9.33% of unbooked cases (Table 4).

Among booked cases, 28.67% had low birth weight (<2.5kg),43.33% had birth weight 2.5 – 2.9 kg, 14% had 3-3.4kg, 10% had weight 3.5-3.9kg and >4% were >4kg in weight.Among unbooked cases 41.33% had low birth weight, 32.67% were 2.5-2.9kg, 12.67% of 3-3.4kg, 10.67% 3.5-3.9kg and 2.66% were >4kg.(Table 5)

Table 1.Distribution of cases based on perinatal outcome

Perinatal Outcome	Booked Case(n=150)		Unbooked Case (n=150)	
	Number	Percentage	Number	Percentage
Stillbirth	3	2	7	4.67
Early neonatal death	6	4	9	6
Low birth weight	43	28.67	62	41.33

Table 2. Comparison of gestational age

Causes	Booked Case		Unbooked Case	
	Number	Percentage	Number	Percentage
Preterm	9	6	15	10
Term	141	94	135	90

Table 3. Distribution of cases based on perinatal morbidity

Morbidity	Booked Case		Unbooked Case	
	Number	Percentage	Number	Percentage
Intrapartum:				
Meconium stained liquor	15	10	24	16
FHR abnormality	6	4	9	6
After birth:				
Birth asphyxia	3	2	10	6.67
Respiratory problems	6	4	8	5.33
Birth injury	1	0.67	2	1.33
Congenital anomaly	2	1.33	2	1.33
Hyperbilirubinemia	3	2	5	3.33
Infection	1	0.67	3	2

Table 4. Distribution of cases based on Apgar score

Apgar Score	Within 1 min				At 5min			
	Booked		Unbooked		Booked		Unbooked	
	No	%	No	%	No	%	No	%
7-10	125	83.33	118	78.67	-	-	-	-
4-6	18	12	20	13.33	8	5.33	14	9.33
0-3	7	4.67	12	8	3	2	6	4

Table 5. Birth weight Distribution

Birth Weight in Kg	Booked Case		Unbooked Case	
	Number	Percentage	Number	Percentage
< 2	19	12.67	22	14.67
2- 2.4	24	16	40	26.67
2.5 -2.9	65	43.33	49	32.67
3-3.4	21	14	19	12.67
3.5- 3.9	15	10	16	10.67
4 And above	6	4	4	2.66
Total	150	100	150	100

DISCUSSION

The present study was undertaken to assess maternal and neonatal outcome in booked and unbooked cases in Assam Medical College and Hospital.

In this study ,out of the booked cases ,10% had meconium stained liquor ,4% had FHR abnormality , 2% had birth asphyxia ,4% had respiratory problems,0.67% had birth injury, 1.33% had congenital anomaly ,0.67% had hyperbilirubinemia and 0.27% had infections .Out of the unbooked cases, 16% had meconium stained liquor ,6% had FHR abnormality, 6.67% had birth asphyxia ,5.33% had respiratory problems, 1.33% had birth injury, 1.33% had congenital anomaly, 1.33% had hyperbilirubinemia and 0.33% had infection. In similar study, Mundhra R et al.(NEIGRIHMS)showed that MSL,FHR abnormality, birth asphyxia, hyperbilirubinemia was higher in unbooked cases[7] . In our study Apgar score of 7-10 was higher percentage of booked cases than in unbooked cases and score of 4-6 in lesser percentage of booked than unbooked cases(9.33%).Similar to our study, Apgar score of <7 was found in higher number of neonates in unbooked than in booked cases in a study by Mundhra R et al and by Chourasia S et al in Bikaner, Rajasthan[7,8] .

In our present study,94% booked cases were term and 6% were preterm .Out of unbooked cases 90% were term and 10% were preterm . In a study by Aggarwal S et al. at Department of Obstetrics and Gynaecology Kamla Raja Hospital, Gajra Raja Medical College and J.A Group of Hospital , Gwalior , Madhya Pradesh 87.6% booked cases and 59.8% unbooked cases were term pregnancy .12.4% booked cases and 40.2% unbooked cases were preterm[9]The proportion of term pregnancy is found to be more in the booked cases in both of these studies.

In this study ,out of the booked cases,28.67% had low birth weight (<2.5kg).43.33% had birth weight2.5-2.9,14% were 3-3.4kg,10% had 3.5-3.9kg and 4% were >4kg .Out of unbooked cases 41.33% had low birth weight (<2.5kg),32.67% were 2.5-2.9kg,12.67% 3-3.4kg,10.67% had 3.5-3.9kg and 2.66%were >4 kg .In a study by Mundhra R et al 5.5% in booked and 12.6 % in unbooked cases had low birth weight[7].Chourasia et al found that 24.25% in booked and 44% in booked cases had birth weightvof <2.5 kg[8].Similar to both the studies,our study showed that percentage of LBW is less in booked than in unbooked cases.

In our study it was found that stillbirth and early neonatal deaths were 2%, 4% respectively in booked and 4.67%, 6% respectively in unbooked cases.Similarly in a study by Chaurasia et al. frequency of stillbirth nd early neonatal death is more in booked cases than in unbooked cases[8].

CONCLUSIONS

It can be concluded that poor antenatal care is a risk factor for neonatal outcome of both the mother and the baby.Hence adequate antenatal care in combination with timely referral system and optimum emergency obstetrical facilities will reduce perinatal morbidity and mortality to minimum.Timely availability and accessibility of the proper health care services and encouraging institutional deliveries for all the pregnant women in all the corners of the world leads to early diagnosis and appropriate intervention of all the high risk pregnancies results in better maternal and neonatal outcomes. However, only early and easy access and availability to the health care services are not alone to contribute towards a good neonatal outcome. Other underlying factors like inequalities in maternal and social living conditions also important determinants effecting the neonatal health .So, policies focusing on material and social are also to be made for every newborn to survive and thrive to reach their full potential.

REFERENCES

- [1] World health report 2005: Make every mother and child count. Geneva: WHO; 2005.
- [2] Lawn JE, Cousens S, Zupan J. 4 million neonatal deaths: When? Where? Why? Lancet 2005;365:891-900. Doi:10.1016/S0140-6736(05)71048-5)
- [3] WHO, UNICEF, UNFPA, World Bank Group and the United Nations Population Division Trends in maternal mortality: 1990 to 2015[Internet]. Geneva: World Health Organization;2015[cited 17 September 2019]. Available from:http://apps.who.int/iris/bitstream/10665/194254/;/9789241565141 eng.pdf?ua=1.
- [4] Special bulletin on maternal mortality in India 2014-16 [Internet]. New Delhi: Office of the Registrar General, India, Ministry of Home Affairs, Govt. of India;2018 [cited 17 September 2019]. Available from:http:// www.censusindia.gov.in/vital_statistics/SRS_Bulletins/MMR%20Bulletin-2014-16.pdf
- [5] McIntire D, Bloom SL, Casey BM, Leveno KJ (1999) Birth weight in relation to morbidity and mortality among newborn infants. N Eng J Med 340: 1234-1238.
- [6] Seid SS, Ibro SA, Ahmed AA, et al. Causes and factors associated with neonatal mortality in Neonatal Intensive Care Unit (NICU) of Jimma University Medical Center, Jimma, South West Ethiopia. Pediatric Health Med Ther. 2019;10:39-48. Published 2019 May 3. doi:10.2147 /PHMT.S197280.
- [7] Mundhra R, Singh AS, Agarwal M, Kumar R. Utilization of antenatal care and its influence on fetal-maternal outcome: a tertiary care experience. International Journal of Reproduction, Contraception, Obstetrics and Gynecology. 2016 Dec 13;2(4):600-6.
- [8] Chourasia S, Yadav K. Analytical study to assess maternal outcome in booked and unbooked obstetrics cases. International Journal of Biomedical and Advance Research. 2016;7(12):569-573
- [9] Aggarwal S, Mishra U, Mishra P, Ranjan KR To study the maternal and perinatal outcome in booked versus unhooked patients. European Journal of Pharmaceutical and Medical Research.2017;4(3):308-312.