Antenatal Care the Essence of New Born Weight and Infant Development

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Abstract- The objectives of the research study were to study the birth status of the new born , born in Government and Private hospitals, to examine the effect of antenatal care on birth outcome and to study the effect of birth weight on developmental outcomes of infants at Six months of its age. The sample consists for the research method was 904 births of both government and private hospitals of Dharwad city constituted the sample. All births were measured within 24 hours of delivery. From the birth register and baby's information sheet required information was collected and mothers were interviewed with the help of interview schedule after delivery to elicit the necessary information. Correlation of co-efficient was applied. Results reveals that that antenatal care of mother was significantly and positively associated with weight of the newborn indicating that more number of visits and treatment taken during pregnancy was related to their outcomes in addition to their previous antenatal care of the mother was also statistically significant with present outcomes in terms of weight Better weight of babies was found among mothers who had received antenatal care, throughout their pregnancy period. Incidence of low birth weight babies was found much more among mothers who did not receive any antenatal care during their pregnancy period. The study concludes that the proper antenatal care during pregnancy decreases the complications for both mother and infants. The birth weight increased with increased total number of antenatal care.

Index Terms- Antenatal care; Birth status; Birth weight; Infant development

I. INTRODUCTION

Antenatal care is the systemic medical supervision of women during pregnancy. Its aim is to preserve the physiological aspect of pregnancy and labour and to prevent or detect, as early as possible, all that is pathological. Early diagnosis during pregnancy can prevent maternal ill-health, injury, maternal mortality, foetal death, infant mortality and morbidity Dr Haldipur (2006). Hence, the earlier in pregnancy a woman comes under the supervision of an obstetrician, the better. Pregnancy, Labor and birth of a child are important milestones in a couple's life. Regular medical care and understanding the unknown events during pregnancy can make childbirth an extremely enriching and joyful event.

Antenatal care begins with 'history-taking' and is followed by a complete examination of the pregnant mother. Thereafter, the mother-to-be receives advice and instructions about her mode of life, diet and regular antenatal check-ups till labour sets in.

Antenatal care The care that mother had received during pregnancy which included IFA tablets, TT, blood and urine test and total of this is categorised as follows. Total of this score is a antenatal care. These groups were further categorized into booked (Antenatal care received) and unbooked (not antenatal care received).

'Be good to your baby before it is born'. This aphorism serves to emphasize the importance of medical care during pregnancy (known as antenatal care). The care is so important because, the fetal organs are actively developing during the first 12 weeks of pregnancy (this crucial period is called 'organogenesis'.) The embryo is highly susceptible to external insults during this time, so that any damage can lead to crippling birth defects Malpani (2012). Hence a need was felt to study how antenatal care affects on new born in terms of its impact on birth weight. The objectives were formulated for the study are listed as follows:

- To study the birth status of the new born , born in Government and Private hospitals
- To examine the effect of antenatal care on birth outcome
- To study the effect of birth weight on developmental outcomes of infants at Six months of its age.

II. METHODOLOGY

A list of hospitals was obtained from district health office of Dharwad. There were totally 16 hospitals in Dharwad city. Among them 14 were private hospitals and 2 were government hospitals. The fourteen private hospitals were contacted and two of these hospitals were selected on the basis of number of cases they admitted in their hospitals and who were cooperative. Both the government hospitals were selected (as the number of government hospitals were only two).

Concentrated efforts were made to visit all the selected four hospitals regularly for a period of three months to know the prevalence of developmental delays among infants.

Mothers were interviewed with the help of interview schedule after delivery, to elicit the necessary information. The secondary data was collected from birth register, case sheets and baby's information sheet. Information provided by the mother was cross checked with the case records. Newborn's length was measured with the help of infantometer. The data consisted of both primary and secondary sources. All the information was collected within 24 hours of birth of newborn.

All the consecutive birth in the selected four hospitals during the period of 3 months was recruited for the study. A total sample of 627 from government and 231 private were included in the study. Among a total sample of 904, low births weights were

229, normal birth weight were 616, preterm 29 and 30 were still birth.

To test the developmental outcomes and developmental delays of infants at 6 month among various birth status viz., low birth weight, normal birth weight and preterm only those who were residing in the Dharwad were selected. A minimum of 25-30 samples were selected from each of the four categories viz., low birth weight with and without complications and normal birth weight with and without complications. The newborns were grouped in to several categories considering the Apgar score too. Thus the total sample constituted 121 infants (14%) out of 904 live births.

The scales employed were self-constructed questionnaire to assess the birth status of infants. Bayley scale for infant development (BSID-1993), Test for screening developmental delays developed by National Institute for the mentally handicapped, Secunderabad (2000), and Apgar rating scale (APGAR, 1953).

Student 't' test was employed to know the significant differences in the psychomotor and mental development between low birth weight and normal birth weight infants and chi-square to know the association of birth complications with developmental outcomes.

Table 1. Percentage distribution of newborn with birth status (N=904)

Groups	Total
Still birth	30 (3.3)
Preterm	29 (3.2)
Low birth weight	229 (25.3)
Normal	616 (68.1)
Total	904 (100.0)

Figures in the parentheses indicate percentages

There were totally 904 newborns recruited for the study (Table 1). Among these 616 infants were normal birth weight weighing more than 2500 grams at birth. About 26 per cent of newborns were low birth weight weighing less than 2500 grams at birth. The per cent of still birth was 3.3 and pre term was 3.2 percent.

Table 2. Percentage distribution of birth status groups by booked and unbooked case (N=904)

Groups	Hospitals	Antenatal care		Total
		Booked	Unbooked	
Stillbirth (n=30)	Govt.	8 (36.3)	14 (63.7)	22
	Pvt.	2 (66.7)	1 (33.3)	3
	Govt.	1 (33.3)	2 (66.7)	3
	Pvt.	1 (50.0)	1 (50.0)	2
Preterm (n=29)	Govt.	4 (25.0)	12 (75.0)	16
	Pvt.	5 (62.5)	3 (37.5)	8
	Govt.	1 (50.0)	1 (50.0)	2
	Pvt.	3 (100.0)	-	3
LBW (n = 229)	Govt.	53 (39.0)	83 (61.1)	136
	Pvt.	22 (84.6)	4 (15.4)	26
	Govt.	11 (20.0)	44 (80.0)	55
	Pvt.	8 (66.7)	4 (33.3)	12
Normal (n=616)	Govt.	313 (79.6)	79 (20.4)	392
	Pvt.	127 (97.7)	3 (2.3)	130
	Govt.	40 (80.0)	10 (20.0)	50
	Pvt.	43 (97.8)	1 (2.2)	44
Total		**642 (71.0)**	**262 (29.0)**	

Figures in the parentheses indicate percentages

Table 2 shows Percentage distribution of birth status groups by booked and unbooked cases. There were a higher percentage of booked cases (71%) than unbooked cases (29%). The percentage of unbooked cases was found higher in government hospitals than in private hospitals. While the prevalence of booked cases was higher in case of private hospitals.

The percentage of booked cases was found higher in normal birth weight groups ranging from 80 to 97 per cent. While in case of low birth weight higher percentage was found in unbooked cases. Similar observation was found in preterm cases. where in the prevalence of birth complications was higher among unbooked cases than booked cases.

Table 3. Correlation of antenatal care and weight of the newborn

Factors	Weight of the newborn
Present antenatal care	0.420***
Previous antenatal care	0.163***

*** significant at 0.001 level of probability

Note : Antenatal care includes – No. of visits to hospitals, blood and urine test, IFA tablets taken and other treatment taken during pregnancy, (which was advised by gynaecologist).

III. IMPACT OF ANTENATAL CARE ON NEWBORN WEIGHT

Impact of antenatal care on weight of the newborn was computed by applying co-efficient of correlation which is presented in table 3. The table reveals that antenatal care of mother was significantly and positively associated with weight of the newborn indicating that more number of visits and treatment taken during pregnancy was related to their outcomes in addition to their previous antenatal care of the mother was also statistically significant with present outcomes in terms of weight which shows that lack of antenatal care affects the health condition of the mother which leads to poor outcomes of their pregnancy especially in terms of weight of their newborn.

The results revealed that the percentage of antenatal care received was found higher in normal birth weight group. A significant relation was found with weight of the newborn. The results are in line with Patil et al. (1993) and Das et al. (1981) who revealed that more number of antenatal visits resulted better birth weight of the newborn. The findings in the present study revealed that among newborns with complications a higher percentage of mothers made 5-8 visits.

The prevalence of low birth weight was found more in unbooked cases (78.2%). Some of the mothers (9.5%) had taken only few tablets. The reason mentioned were baby will grow bigger size (65.3%), vomiting (38.3%), heart burning sensation (28.9%). The results are in line with Naik and Wantamuthe (1998), Khan and Mathur (1989), Yadav (1987), Trivedi et al. (1986) and Kamaldoss, Abel and Sampath kumar (1992) who concluded that small for gestational age newborns were found to be significantly related to antenatal care of the mother. The rate of low birth weight was low for booked cases than unbooked cases and who did not receive antenatal care experienced very high perinatal morbidity and still birth. In case of newborns with complications same trend was observed. In case of preterm (16 out of 29) and still birth (18 out of 3) were found to be unbooked cases. This lack of antenatal care of the mother might be resulted in still birth.

Table 4. Influence of birth weight and length on PDI and MDI (6 months) of infants

	PDI	MDI
Weight	0.534***	0.534***

***   Significant at 0.001 per cent of probability

Influence of birth weight on PDI and MDI

Weight of the newborn at birth was positively related to psychomotor and mental developmental indices of infants. It might be the reason that better weight at birth makes better health condition, similarly lower weight is an indication of IUGR may result in a deficit which continues to persist even at six months. The result are in line with Bohm *et al.* (2002).

IV. CONCLUSION

Labour and delivery is the end of pregnancy and beginning of new life. Antenatal care plays an important role to achieve a successful labour and delivery process. Regular antenatal classes help in the physical and mental preparation of women and help them relax during those last months. Antenatal care ensures maternal foetal health wellbeing and also prepares women physically fit for labour, delivery and the postpartum period. Regular visits to the doctor during pregnancy are aimed to ensure that the health of the pregnant women and the growing foetus is well maintained. When all stays well and proper care is taken, the pregnancy is generally low risk.

Better weight of babies was found among mothers who had received antenatal care, throughout their pregnancy period. Incidence of low birth weight babies was found much more among mothers who did not receive any antenatal care during their pregnancy period. Antenatal care decreases future complications. the birth weight increased with increased total number of antenatal care

REFERENCES

[1] Bohm, M., Katz-salomon, M., Smeler, A., Logercrantz, H. and Porssberg, H., (2002). Developmental risks and protective factors for influencing cognitive outcome at five and half years of age in very low birth weight children. Developmental Medicine and Child Nuerology,44: 508-516.

[2] Das, K., Ganguly, S.S., Shaha, R. and Ghosh, B.N., (1981) Interrelationaship of Birth weight with certain biological and socio economic factors. Indian Journal of Public Health, 25 (1): 11-19.

[3] Dr Haldipur Sheila (2006) http://www.boldsky.com/pregnancy-parenting/prenatal/2006/antenatal-care.html.

[4] Kamaldoss, T., Abel, R. and Sampath kumar, (1992), Epidemiological correlates of low birth weight in rural tamil nadu. Indian journal of paediatrics, 59: 299-304.

[5] Khan and Mathur (1989) Growth and development, Abstracts of Scientific Paper 30;18-24.

[6]   Malpani Aniruddha (2012) www.healthlibrary.com/article4.htm

[7] Naik and Wantamuthe (1998) Antenatal care the essence of perinatal survival. Abstracts of Scientific Paper, pg No. 127.

[8]   Patil, M. S., Khadi, P.B. and Gaonkar, V., (1993) factors affecting the birth weight and length of urban and rural neonate. Karnataka Journal of Agricultural science.

[9]   Trivedi, C.R., and Mavalankar, D. V., (1986), Epidemiology of low birth weight in Ahmedabad. Indian Journal of Paediatrics, 53(6) : 795-800.

[10] Yadav (1987), outcomes of am emergent literacy intervention in headstant. Developmental Medicine and Child Neurology, 14: 94-109.

[11] Pregnancy   and   Antenatal Carehttp://www.medindia.net/patients/patientinfo/antenatal-care.htm#ixzz1Np3vgwpe

[12] http://www.indiaparenting.com/pregnancy/338_2617/antenatal-care.html

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