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Low Birthweight in Hausa Infants

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Summary

Rehan NE and Tafida DS. Low Birthweight in Hausa Infants. *Nigerian Journal of Paediatrics* **1981;8:35.** The incidence of low birthweight among 3,890 live-born Hausa infants was 21.3%, being significantly higher in females (23.6%) than in males (19.3%). The incidence appeared to be influenced by both maternal age as well as parity. Possible aetiological factors included multiple pregnancies, prematurity and toxaemia of pregnancy.

Introduction

THE World Health Organisation (WHO)[1] has recommended that in countries where national surveys have not been carried out to evaluate various health problems, data collected at regional levels or in various hospitals should be used to formulate local standards. This recommendation holds good for Nigeria because very little work has been done to study the various health problems at the national level, and also because significant regional variations may exist due to different ethnic compositions. Majority of previous studies of birthweight and its allied problems in Nigeria have been carried out in the southern parts of the country particularly in Ibadan and Lagos.[2-6]

There are only two previous reports of birthweights from northern Nigeria.[7,8] The former deals with a multi-ethnic group, while the latter deals only with the predominant ethnic group, the Hausas. Both reports have tried to establish the standard birthweights for the area and have made only casual references to low birthweight (LBW). Since infants with low birthweights constitute a group requiring specialised care, it was thought worthwhile to evaluate in detail, the problems of low birthweight among the Hausas.

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Materials and Methods

From the records of the deliveries conducted at the Maternity Hospital, Katsina, between 1st of January, 1974 and 31st of December, 1977, the case records of all live-born infants of Hausa parents were selected for the present study. The low birthweight infants, i.e., those weighing 2,500g or below[9] were separated, their characteristics studied and possible aetiological factors identified. A comparision of this group was then made with those neonates who weighed more than 2,500g. The duration of gestation was determined from the menstrual history and by appropriate clinical examination before delivery. The data so obtained were however not considered to be very reliable, therefore no attempt was made

to correlate the birthweights with duration of pregnancy. Infants born before the 37th week of pregnancy were labelled as "premature."[9] The birthweight in all these cases was recorded by using a metric scale before the first feed.

Results

During the study period, 3,890 live Hausa infants (2,111 males and 1,779 females) were born to 3,780 mothers. Of these 3,890 infants, 408 males and 420 females weighed 2,500g or less. These 828 infants were born to 774 mothers and included 91 sets of twins and five sets of triplets though the outcome of all multiple pregnancies were not live births.

The maternal ages ranged from 13 to 45 years. The mean age was 21.7 ± 6.5 years. The parity ranged from 0 to 14 but there were more primigravidae compared to other parities. All the mothers belonged to lower and middle socio-economic classes. Seventy per cent were from the urban population while 30% were from rural areas. Thirty-one per cent had attended antenatal clinic, and the rest were unbooked cases.

The incidence of low birthweight (LBW) was 213/1,000 live births or 21.3%. The incidences according to maternal age and parity are summarised in Tables I and II respectively.

LBW pattern among male and female neonates

Table III gives the distribution of the 828 cases of LBW according to their sex, into various weight groups as recommended by WHO Expert Committee on Maternal and Child Health.[9] The majority of these babies (71.1%) weighed between 2,000g and 2,500g while only 1.6% weighed less than 1,000g. Although males exceeded females among the total live births in a ratio of 54.3 to 46.7, the percentage of females among LBW infants was higher (50.7%) as compared to that of males (49.3%). The incidence of LBW was 19.3% among males and 23.6% among females ($P < 0.001$).

TABLE I

Incidence of Low Birthweight According to Maternal Age

Age (Years)	Total Deliveries		Low Birthweight		% of Low Birthweight
	No. of Mothers	No. of Live Births	No. of Mothers	No. of Live Births	
< 15	70	59	19	16	27.1
15–19	1,190	1,206	311	318	26.4
20–24	886	906	172	184	20.3
25–29	650	677	105	118	17.4
30–34	498	530	90	105	19.9
35–39	195	212	30	37	17.5
> 40	86	88	6	7	7.9
Not Recorded	205	212	41	43	20.3
Total	3,780	3,890	774	828	21.3

$X^2 = 21.57$ df6 $P < 0.01$

TABLE II

Incidence of Low Birthweight According to Parity

Parity	Total Deliveries		Low Birthweight		% of Low Birthweight
	No. of Mothers	No. of Live Births	No. of Mothers	No. of Live Births	
0	1,317	1,329	362	369	27.8
1	470	476	81	84	17.7
2	423	438	64	70	15.9
3	365	376	63	78	21.7
4	270	285	60	68	23.8
5	194	206	29	39	18.9
6	208	217	28	30	13.9
>6	533	563	87	90	15.9
Total	3,780	3,890	774	828	21.3

$X^2 = 36.49$ df7 $P < 0.001$

TABLE III

Low Birthweight Distribution among Male and Female Neonates

Sex	*No of Cases*	*< 1,000 g*	*1,001–1,500 g*		*1,501–2,000 g*		*2,001–2,500 g*		*Total No.of LBW*	*Total Live Births*	*% of LBW*
		%	*No*	*%*	*No*	*%*	*No*	*%*			
Male	8	1.9	41	10.1	80	19.6	279	68.4	408	2,111	19.3
Female	5	1.2	30	7.1	75	17.9	310	73.8	420	1,779	23.6
Total	13	1.6	71	8.6	155	18.7	589	71.1	828	3,890	21.3

Effects of Environmental Factors

The monthly and seasonal incidence of LBW was uniform and no seasonal variation could be found. The incidence of LBW was 18.4% among urban women and 23.4% among those living in rural areas, the difference being highly significant ($P < 0.001$).

Neonatal Deaths

As the mothers were usually discharged 24 hours after delivery and were often lost to follow up, it is very difficult to give an accurate incidence of neonatal deaths. However, 21 children died within 24 hours of birth in the hospital and their distribution according to birthweights is given in Table IV.

Aetiological Factors

The various factors associated with LBW in the present series are summarised in Table V, which also compares the frequency of these factors in the LBW group with their frequency among the neonates weighing over 2,500g.

Discussion

Compared with developed countries, a LBW incidence of 21.3% appears to be very high, but when we compared our findings with those from other parts of Nigeria, we find an almost comparable incidence. Ladipo and Adelusi [6] have reported an incidence of 24.9% for UCH, Ibadan, while the figures quoted by Effiong *et al*, [5] from the same institution, are 17.3% for males and 21.2% for females. The differences between these figures and ours are not statistically significant. However, there is an inconsistency in the figures reported by Effiong and his colleagues.[5] Their original article [5] indicated that 2,079 LBW infants were born at UCH, Ibadan, during 1968–72 and the possible aetiological factors were studied among those 688 LBW infants who were born during 1968–70. On the other hand, in a recent article, Effiong [10] has mentioned that these 688 LBW infants were delivered during 1968–72. If this was not a misprint, the incidence of LBW at UCH, Ibadan, would be only 6.6%, which contradicts their

TABLE IV

Immediate Neonatal Deaths According to Birthweights

	Birthweight (g)				*Total*
	< 1,000	*1,001–1,500*	*1,501–2,000*	*2,001–2,500*	
Number of Deaths	9	7	4	1	21
Total Deliveries	13	71	155	589	828
%	69.2	9.9	2.6	0.2	2.5

TABLE V

Comparison of various factors in Low Birthweight and Normal Sized Neonates

Factor	**Frequency		Statistical Significance
	Low Birth-weight	Over 2,500g	
Multiple Pregnancy	22.2	1.8	0.001
Prematurity	12.9	1.2	0.001
Toxaemias	3.6	1.7	0.01
Malpresentations	3.4	2.0	0.05
A.P.H.	2.8	0.9	0.001
Maternal illness	1.8	1.0	* NS
Anaemia	1.4	0.8	* NS
Hypertension	0.7	0.2	* NS
U.T.I.	0.5	0.8	* NS
Cervical Incompetence	0.5	–	* NS
Hydramnios	0.5	0.1	* NS
Induced Labour	0.4	0.1	* NS
Unknown Causes	49.1	–	–

**Percentage of cases in each group.
*Not Significant.
A.P.H. = Antepartum haemorrhage
U.T.I. = Urinary tract infection

former statement. The figures of 9.4% and 9.8% quoted by Oduntan and Ayeni [4] for two MCH centers near Ibadan are significantly lower not only compared to our figures but also to the findings of other investigators from the same area.[6] This marked difference is probably due to the type of population studied by them. Oduntan and Ayeni[4] selected only full-term singleton infants, whose mothers had regularly attended ante-natal clinics, and predictably, their figure was close to the incidence reported in our previous study where we had analysed the birthweights of full-term singleton infants.[8] Osuhor[7] who carried out a study of 1199 infants of different ethnic groups in Malumfashi, which is very close to our unit, also found an incidence of 20%.

There was no obvious associated factor with LBW in about half (49.1%) of our cases, and a majority of these were born after 37 weeks of gestation. After excluding such cases, the most prominent aetiological factors were multiple pregnancies, prematurity and pre-eclamptic toxaemia, contributing 22.2%, 12.9% and 3.6% respectively. Compared with infants who weighed more than 2,500g, the incidences of prematurity, multiple pregnancies and toxaemias were higher in the LBW group and the differences were statistically significant. Jellife,[11] Forfar *et al*,[12] Neutra and Nefe,[13] also observed these factors to be of paramount aetiological value. Among the previous Nigerian studies, Efflong *et al*[5] and Adelusi and Ladipo[14] have enumerated the aetiological factors. The factors observed by these investigators were the same as noted in our study, but the prevalence of various factors was numerically different.

A tendency to produce LBW babies was evident among young mothers. Women aged 19 years and below constituted 42.6% of mothers in the LBW group, whereas only 30.9% women were of that same age range when the baby weighed more than 2,500g. The difference was statistically significant ($P < 0.001$). Simultaneously, there were more primiparae in LBW group (46.8%) as compared to the over 2,500g group (31.8%) and 84% of these primiparae were aged 19years and below.

The maternal age and parity are so closely interrelated that it is difficult to determine the relative effects on the incidence of LBW. Some investigators consider maternal age to be more important [4 15 16] while others have laid more emphasis on parity.[8 17 18] The present study shows that both age and parity significantly influence the incidence of LBW. However, when the incidence of LBW is studied according to various age groups while keeping the parity constant (Fig), it is observed that in almost each parity group, the younger mothers have a higher incidence of LBW as compared to their older counterparts. When judged against the social background of this area, the maternal age, to some extent, can be blamed for a higher incidence of low birth weight. Majority of girls in this area marry at a

young age, at times, even before puberty, so that some of them have their first menstrual period in their marital homes. Consequently, child bearing starts at an age when their reproductive faculties are not fully developed.

The higher incidence of LBW in rural as compared to urban population may be due to accessibility of urban population to better medical care and ante-natal facilities. This is evident from the fact that, as compared to 13% of the rural cases, 38.4% of the urban cases were booked ($P < 0.001$).

The highest percentage of deaths in the present study occurred among infants weighing less than 1,000g and the immediate neonatal death rate declined in each successive higher weight group, exhibiting a strong relationship between LBW, and immediate neonatal mortality ($P < 0.001$). Only one child died out of 589, who weighed between 2,001 and 2,500g. This lends support to Effiong's assumption[10] that African LBW infants are at no risk when their weight is 2,000g or more.

Unfortunately, due to the lack of reliable data regarding maternal height and smoking habits, we could not study the effects of these two important variables in the present series.

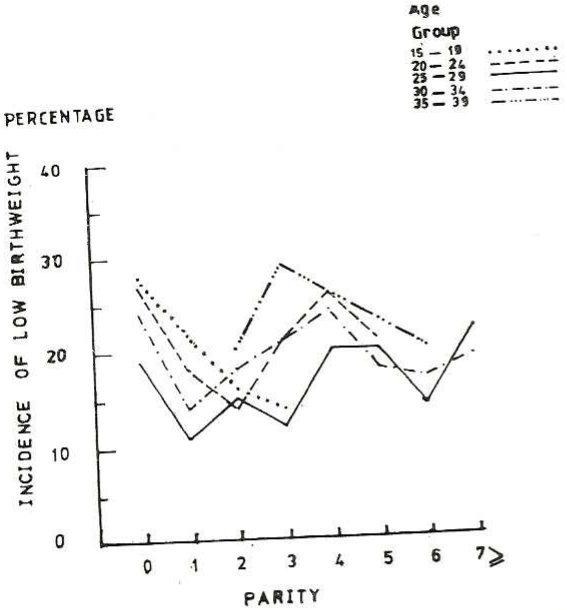

Fig. Effect of age and parity on the incidence of low birthweight

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