

NEONATED PROBLEMS IN KHARTOUM

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Introduction

To date few reports have appeared dealing with the problems of the newborn in Sudan. Thus Mudawi in 1963 (1) reported on the birth weights of an extensive series of newborns drawn from two hospitals where he discussed the various factors influencing those birth weight while Nasr El Din and Labib in 1967 (2) reported their results dealing with some anthropometric measurements and some haematological results in Omdurman and Khartoum. Both these reports were dealing mostly with normal newborns.

In a preliminary communication to the Obstetric congress in 1973 (3) Omer reported some of the problems seen in Khartoum particularly those relating to low birth weights, hyperbilirubinaemia, mortality pattern in the newborn, while Dr. Hassan (4) reported on an elaborate series on congenital abnormalities in the same conference.

The aim of this communication is to give a detailed picture of our experience in the newborn unit in Khartoum and thus help to define the problem which would be the first step in the way of proper management.

Patients and Methods

The records of all the babies born in Khartoum Hospital and those referred to the newborn unit in the period starting 1st. January, 1972 until 31st. December, 1973 were reviewed. Only those records giving minimum details of birth date and weight, clinical course and condition of baby on discharge were analysed. Thus the total number of babies whose data were included in this paper were 1144. For the sake of brevity only the major clinical problems are presented in this paper and discussed with due emphasis being laid where our experience differs from established pattern reported elsewhere.

Results and Discussion

(a) Birth Weight and Gestational Age :

Of the 1144 babies studied 630 (55.1%) were males. Fig. 1 shows the pattern of distribution of the birth weights grouped in intervals of 250 gms. The highest frequencies are seen with weight groups between 2250 and 3750 gms. The mean birth weight is 2740 gms. (\pm 785 gms.)

In a previous communication (5) I have shown that the low birth weight level should be set at 2250 gms. and not at 2500 gms. as recommended by the W.H.O. expert group (6). Taking this level as the cut off 280 babies in this series should be considered as low birth weight babies. This high ratio of 1 : 3 does not by any means reflect the pattern of this problem in the community as this series was drawn from a busy hospital in a big city where most of the normal deliveries take place outside that particular hospital thus giving a strong bias to our figures. Another factor which might further aggravate the bias is the fact that most of the babies whose notes were discarded were 'normal' babies who did not present a problem during their hospital stay or that stay was too short for the staff to examine the babies.

The death rate in the low birth weight group was 36.1% while it was 4.3% for the rest of the group the difference is statistically highly significant (P 0.001). It seems that this level of low birth weight is a reasonable screening method for selecting the at risk babies who would need special attention and care. However, it is agreed that if the gestational age is also known much greater accuracy can be obtained. In this series the last menstrual period could be obtained with reasonable degree of certainty for 354 mothers which amounted to 30.9% of the total series. The total number is small and most of them (283) fall within the normal range, for gestational age and weight. Fig. II shows the distribution of mortality in this group according to these two parameters taken together. It shows that babies of 1250 gms. and less have practically no chance of survival, and that there is progressive improvement of mortality figures as the birth weight and gestational age improve.

(b) *Neonatal Hyperbilirubinaemia :*

Table I shows all the babies who developed hyperbilirubinaemia which is defined as serum bilirubin exceeding 10 mgms. The total number was 52 of whom 28 (53.8%) were males. 14 were of low birth weight giving an incidence of 26.9% which is comparable to the overall incidence of low birth weight in the series.

19 exchange transfusions were done on 12 babies with no mortality. 3 deaths occurred : two of whom were of low birth weight and the third had duodenal artesia proven at laparotomy. As is seen in the table in only one out of 14 babies who were preterm exchange transfusion was needed while in 8 of the 9 babies with Rhesus isoimmunization needed an exchange transfusion

ABO incompatibility seems to be an important cause of severe hyperbilirubinaemia here contrary to what is accepted in the west (7) as it is seen to be occupying the third place and one of the three babies needed exchange transfusion. The malaria and cytomegalovirus are clinical diagnoses not confirmed by blood film or serological studies.

G-6-PD deficiency is known to occur in Sudanese (8) and was looked for in most of the babies specially those in whom no cause was found, but it could not be demonstrated in any baby in this series. However G-6-PD deficiency was confirmed in a Sudanese child presenting with keruicterus at the age of 2 years with a definite history of neonatal jaundice and was again demonstrated in a brother of that child presenting with neonatal jaundice and needing exchange transfusion. (9)

(c) *Congenital abnormalities :*

Table II gives a summary of all the congenital abnormalities seen in these series. A total of 60 cases were seen of whom 40 (66.7%) were males. It is to be noticed that although there is an overall preponderance of males in the series, however the ratio is reversed in C.N.S. abnormalities where 7 of the 11 detected cases were females. while in all other abnormalities the incidence was always higher in the males. 9 babies with congenital abnormalities were of low birth weight giving an incidence of 5.9% in the series as a whole. This difference although statistically not significant is surprising as one expects a higher incidence of congenital abnormalities in low birth weight babies. The list includes all types of myelomeningocele and arthrogyriosis multiplex. The overall case fatality rate for cases with congenital abnormalities was 35%. As is seen in the table the group with highest frequency was musculoskeletal where 18 cases were detected followed by gastrointestinal tract abnormalities and then C.N.S. abnormalities coming on a close third.

Table III gives detailed breakdown of the various congenital abnormalities.

(d) *Respiratory Distress and Hyaline Membrane Disease :*

Table IV shows all the cases who were diagnosed as respiratory distress being defined as any baby at the age of 4 hours showing any two of the following three clinical criteria (1) respiratory rate more than 60 per minute, (2) intercostal or subcostal recession (3) expiratory grunt. The total number who were thus labelled as cases of R.D.S. were 96 of whom 56 were males (58.3%).

Further aetiological diagnosis were attempted on clinical grounds alone with the resulting distinction shown in Table IV.

Table V further compares the two main groups namely those with probable hyaline membrane disease and those with probable chest infection.

Although we have no pathological evidence for the existence of H.M.D. in this series analysis of the data does suggest that this disease exists in Sudanese newborn.

Thus the comparison of the 49 clinically diagnosed H.M.D. and the 37 clinically diagnosed chest infection shows that these two groups are quite different. 39 of the groups H.M.D. (79.6%) are of low birth weight while only 9 (24.3%) of the chest infection group are of low birth weight the difference being highly significant ($P < 0.001$). At the same time we could ascertain the gestational age in 13 babies of the H.M.D. group of whom 7 (53.8%) were preterm and out of 11 babies with chest infection only one (9.1%) was preterm. The numbers are too small to be analysed statistically. This conforms with the known fact that H.M.D. occurs more commonly in the preterm and low birth weight babies.

The mortality was much higher in the H.M.D. than in the chest infection group the difference being highly significant ($P < 0.001$).

TABLE I
SHOWING THE CAUSES OF HYPERBILIRUBINAEMIA OF THE
NEWBORN

CAUSE	Number	%	Needing Exchange Transf.
Rhesus-ISO-Immunization	9	17.3	8
Preterm	14	26.9	1
A.B.O. Incompatability	3	5.8	1
Duodenal Atresia	1	1.9	—
Cephalhaematoma	1	1.9	—
Septicaemia	1	1.9	—
Cytomegalo Inclusion Disease	1	1.9	—
Malaria	1	1.9	—
Cause not Determined	21	40.4	2
TOTAL	52	100 %	12

TABLE II
SUMMARY OF CONGENITAL ABNORMALITIES

SYSTEM INVOLVED	Males		Females		Total Discharged		
	No.	%	No.	%	No.	Alive	%
Central Nervous System	4	36.4	7	63.4	11	8	72.7
Musculoskeletal System	12	66.7	6	33.3	18	14	77.8
Gastro Intestinal Tract	11	84.6	2	15.4	13	10	76.9
Genitalia	4	80	1	20	5	3	60
Cardiovascular System	—	—	2	100	2	1	50
Multiple Congenital Abnormalities	3	75	1	25	4	1	25
Miscellaneous	6	85.7	1	14.3	7	2	28.6
TOTAL	40	66.7	20	33.3	60	39	65

TABLE III
CONGENITAL ABNORMALITIES

	Males		Females		Total	Discharged Alive		
	No.	%	No.	%		No.	No.	%
C.N.S.	Myelomeningocele ...	3	37.5	5	62.5	8	6	75
	Hydrocephalous ...	1	50	1	50	2	1	50
	Hemiplegia ...	0	0	1	100	1	1	100
	Total C.N.S. ...	4	36.4	7	63.6	11	8	72.7
MUSCULOSKELETAL	Talipesquinovarus ...	4	80	1	20	5	4	80
	Erb's Palsy ...	2	50	2	50	4	4	100
	Polydactyly ...	2	66.7	1	33.3	3	3	100
	Sternomastoid tumour...	1	50	1	50	2	1	50
	General Skeletal deformity ...	1	50	1	50	2	0	0
	Arthrogryposis multiplex	1	100	0	0	1	1	100
	Congenital dislocation of hips ...	1	100	0	0	1	1	100
	TOTAL ...	12	66.7	6	33.3	18	14	77.8
GASTRO- INTESTINAL	Anorectal anomalies ...	5	71.4	2	28.6	7	5	71.4
	Cleft-lip-palate ...	3	100	0	0	3	2	67
	Exomphalous ...	2	100	0	0	2	2	100
	Hirschsprung ...	1	100	0	0	1	1	100
	TOTAL ...	11	84.6	2	15.4	13	10	76.9
GENITALIA	Undescended testis ...	3	100	0	0	3	2	67
	Epispadias ...	1	100	0	0	1	1	100
	Vaginal abnormality ...	0	0	1	100	1	0	0
	TOTAL ...	4	80	1	20	5	3	60
C.S.V.	Congenital Heart ...	0	0	2	100	2	1	50
MISCELLANEOUS	Multiple Congenital Abnormalities ...	3	75	1	25	4	1	25
	Down ...	2	100	0	0	2	1	50
	Albino ...	0	0	1	100	1	0	0
	Peire Robin Synd. ...	1	100	0	0	1	0	0
	Hernia ...	1	100	0	0	1	1	100
	? Cretinism ...	1	100	0	0	1	0	0
	? Trimsoy 18 ...	1	100	0	0	1	0	0
TOTAL	9	81.8	2	18.2	11	3	27.3	
GRAND TOTAL	40	66.7	20	33.3	60	39	65	

TABLE IV

RESPIRATORY DISTRESS IN THE NEWBORN

CAUSE	Males		Females		Total No.	Discharged Alive No. %	
	No.	%	No.	%		No.	%
Hyaline Membrane Disease	27	55.1	22	44.9	49	1.9	38.8
Chest Infections	23	62.2	14	37.8	37	26	70.3
Cerebral Haemorrhage	6	66.7	3	33.3	9	—	—
Heart Failure	—	—	1	100	1	—	—
TOTAL	56	58.3	40	41.7	96	45	46.9

TABLE V

 COMPARATIVE ANALYSIS OF CASES OF RESPIRATORY DISTRESS
 PROBABLY DUE TO HYALINE MEMBRANE DISEASE (H.M.D.) WITH
 THOSE PROBABLY DUE TO CHEST INFECTION

	H.M.D. (49)0		Chest 0 Infection(37)		P
	No.	%	No.	%	
Low Birth Weight	39	79.6	9	24.3	< 0.001
Preterm	7	53.8	1	9.1	—
	(13)0		(11)0		
Caesarian Section	12	24.5	5	13.5	>.05
Deaths	30	61.2	11	29.7	< .001
Mean age at Death	3.5 ± 2.3		6.6 ± 5.6		< .05

0 Figures in brackets indicate total numbers of cases available,

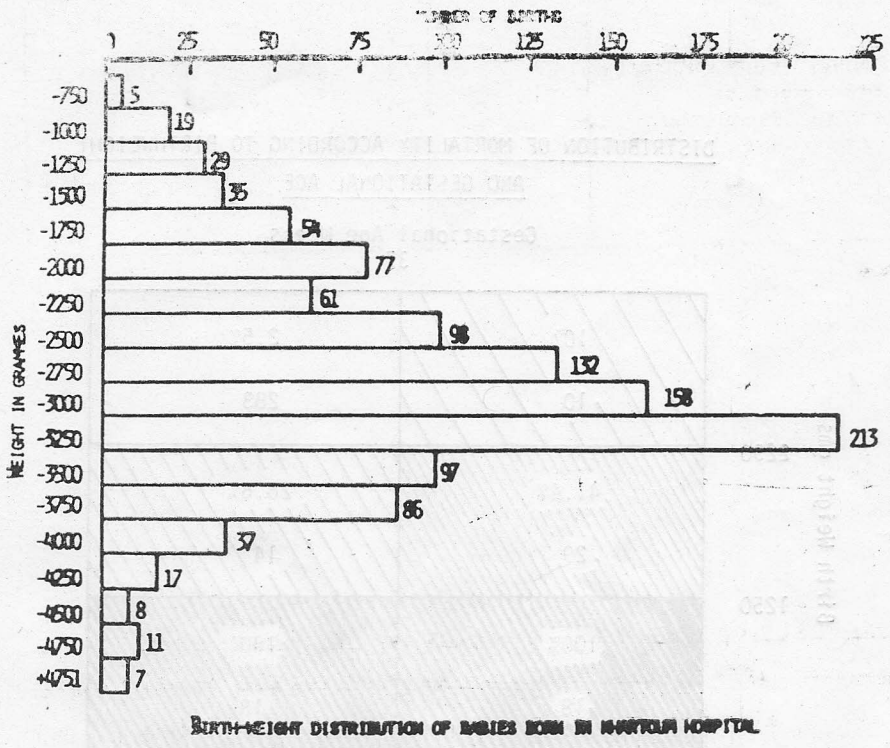


Fig I

Birth weight distribution of babies born in Khartoum Hospital.

DISTRIBUTION OF MORTALITY ACCORDING TO BIRTHWEIGHT
AND GESTATIONAL AGE

Gestational Age Weeks
37

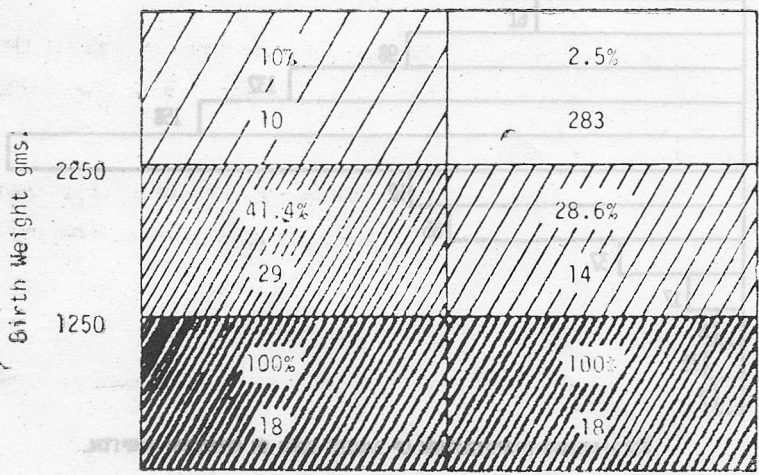


Fig. II

Distribution of Mortality according to birth weight and gestational age.

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