THE PATTERN OF PAEDIATRIC EMERGENCY ADMISSIONS IN ONE UNIT IN KHARTOUM

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Introduction

The paediatric emergency unit in Khartoum Civil hospital is a referral unit which provides 24 hours service, receiving medical paediatric emergencies. In addition patients requiring medical supervision and intervention i.e. injections iv fluids etc. are admitted for 24 hours.

The area covered by the service is Khartoum City. Cases are mainly referred from health centres, also direct access is available for urgent conditions.

The capacity was 30 cots. The staff consist of nurses on 8 hourly shifts, resident house officers, a resident registrar and a consultant on call.

As in other developing countries cases needing care are beyond the limited capacity of the unit and thus admission is according to a priority system.

Equipment is simple and a limited supply of drugs is available.
This study is an analysis of the admission to the unit in one day/week throughout a year. It is under-taken to provide:

- (a) Knowledge of the disease pattern among the paediatric population admitted.
- (b) Causes of morbidity, mortality and case fatality rates and possible ways of improvement.
- (c) Statistical data which will be valuable for further planning and modification of our way of delivering services.
- (d) The information gained will help in defining priority areas to consider in planning curricula and training programmes for undergraduates and postgraduate medical students as well as nurses and auxillaries.

Material and Methods

The study includes all children admitted to the paediatric Emergency unit in one day/week all the year a round from the 1st of January 1976 to 31st., December, 1976.

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Data gathered includes : name/age/sex dates of admission and discharge residence, diagnosis, type of treatment and fate of the child. When there is more than one diagnosis the immediate cause of admission was taken as the primary diagnosis.

The admission forms are filled by the resident house officer, a registrar checks all the forms. All children are seen by one of the authors who checks the diagnosis and other details, he also checks that the deaths are recorded.

The sheets are filed after discharging the last patient from casualty.

After 24 hours children who improve are allowed to go home, those who require investigation and further management are admitted in Soba University Hospital or Khartoum Civil Hospital.

Results

A total of 1013 children were seen. 13 forms were rejected for deficient information. Of the remaining 1000 cases 563 were males and 437 were females, a male : female ratio of 1:3.

As seen in figure (1) about 3/4 of the admission are under 5 years of age.

Distribution according to area of residence is shown in table (1) and it shows that 29% of all admissions are from outside Khartoum City.

Table (2) shows the fate of the admissions 79% were discharged within 24 hours. 9% after 48 hours and only 3% were kept more than 96 hours

The main causes of admission for all age groups are :

Respiratory tract infections (33%), Diarrhoeal disorders 29.9%, infectious diseases 8.3%, malaria 5.5%, Malnutrition (3.5%) and a miscellaneous group (19.8%)

The pattern of disease according to age is shown in figure (2).

It was noticed that malnutrition figured low in this table and was decided that all records should be analysed comparing recorded wts. with standard wt (50 th Centile Boston) accordingly children with malnutrition were classified using the Welcome classification of malnutrition.

In 557 cases no wts. were recorded, a further 133 cases were over 5 years of age and were excluded. 310 cases were analysed.

Table (3) shows the various subgroups. Percentage distribution according to degree of malnutrition for both dead and alive children is shown in , Fig. (3).

2nd and 3rd degree malnutrition represented 45.5% and 21% respectively of the total No. of cases in which a wt. was recorded. 64 deaths were recorded thus the overall mortality is 6.4%.
Male - female ratio is 1:4.
Percentage distribution according to age group is shown in Fig. (4).
68% of all the deaths occured within first 24 hours.

Table (4) shows the percentage distribution of mortality according to to causes of death and the individual case fatality rate/1000.

Percentages are worked out from the total no. of deaths i.e. (64) and case fatality rate from the total no. of children registered with the specific disease,

—20—

Table (5) shows the no. of patients receiving different types of treatment. 62% needed some form of injections 36% needed iv fluids.

Discussion :

Several interesting facts emerge from the analysis. As expected the age distribution showed that 41% of all admissions are infants. This i lower than the figure of 60% from a similar study by Stephen in Cameroon. 75% of all admissions are under five years. This emphasizes that attention has to be focused on the under - 5 group as a vulnerable sector.

Although the emergency unit was meant to cater for Khartoum City yet 16% of all admissions came from Gezeira province, 3.4% from Khartoum North and 3% from Omdurman. To our mind this reflects (a) some shortage of emergency services delivered in those areas. (b) the reputation that doctors are available 24 hours/day. (c) Availability of transport.

This influx cannot be stopped unless similar institutions are made available for people in the respective areas.

About 2/3 of children admitted are discharged home, 16.6% admitted to Khartoum Civil Hospital and 12% to Soba University Hospital.

6.3% of children died. This mortality rate is lower than figures recorded by other investigations in similar set up. Yaogde (Cameroon) 12.9%, Kishasa (Congo) 16.5%, Kampala 12%.

85% of all deaths occured within 24 hours of admission. This figure is higher than that reported from Cameroon 52%, Congo 51% and Uganda 37.9%. This well known pattern reflects on advanced state of illness on arrival to hospital because of lack of health awarness and failure to gain access to hospital together with failure of early reference of potentially severe cases.

The pattern of different causes of admission to the unit shows that respiratory disease and gastroenteritis comprise about 60% of all admissions. This pattern is similar to that reported by Stephen and Jellife.

When this is scrutinized further according to age group respiratory disease is the main cause in the newborn with gastroenteritis in the 2nd place. Gastroenteritis is the most frequent cause in infants with respiratory disease assuming a lower frequency. Both are insignificant causes in children above 5 years. There infectious, diseases are prominent.

Recorded diagnosis of malnutrition accounted for only 3.5% of the admissions. We doubted these figures on clinical experience and thus decided to analyse the records of all children using wt. for age as a criterion for diagnosis.

This sub sample of 310 children revealed that only 31% of the children are above 80% of the standard, 45.5 had first and second degree malnutrition and 21% third degree malnutrition. Thsee figures are higher than those reported by Stephen.

Thus malnutrition is very prevelant yet not recorded. We feel that the primary diagnosis usually makes the treating doctor less aware of the fact that malnutrition is the usual background in many infections. Unless this interaction between malnutrition and infection is identified a radical cure for the children is difficult to attain. The incidence of malnutrition is higher than that recorded in the community. Omer (6) in a pilot study in Soba village found the incidence of mild/moderate & severe malnutrition about 40% this is certainly lower in Khartoum City. The difference can be explained by the susceptibility of malnourished children to infection.

A further striking fact is that grade III malnutrition was a background for 45.5% of all the deaths, grade I and II 41% although respective percentages in all children were 21% and 45%. This inverse relationship emphasizes the vulnerability of severely malnorished children.

We strongly feel that weights should be registered and recorded as percentages of standard weights. Charts should be used when feasible.

Analysis of the mortality showed that mortality is inversely related to age declining from 30% in neonates to 1.4% after 5 years. Thus special atten tion has to be paid to neonates and infants.

Gastroenteritis, respiratory disease and malnutrition are major contributors to mortality.

Individual case fatality rates were :

G E 11.7% this is comparable to figures produced by Musoke but higher than those reported by Stephen.

Case fatality for respiratory diseases 5.8% malnutrition 11.4% are comparable to those reported by Stephen.

From the morbidity and mortality patterns it is quite evident that respiratory disease, gastroentertis, malnutrition, childhood infections and malaria account for more than 80% of the admissions. The first three account for 75% of the total and have a higher contribution as causes of mortality.

This is of significant implication for training of auxillaries, nursing and medical staff.

It has an equally significant implication on stressing priorities for health education, environmental hygiene and vaccination programmes for the target age group.

62% needed some form of injections the majority for 24 hours. 36% needed iv fluids.

If we considered a unit with 30 beds and about 20 admissions these figures mean that 12 patients will need injections and 8 children will need i.v. fluids. Cases accumulate during the day and thus the night shift is the most burdened of all. These facts should be taken in consideration when distribution of nursing staff is implemented.

CONCLUSIONS

The main features from this analysis are :—

1.   Low mortality rate inspite of the shortages.

2.   About 30% of cases are from outside Khartoum. It will be better for children in those areas to have available facilities near their areas of residence. This will relieve some pressure from the overburdered unit thus offering an even better service.

3.   Because of the high mortality in the newborns we feel that it is justifiable to have special facilities for them seperate from the overcrowded emergency unit rooms.

4.   Gastroentritis, respiratory disease and malnutrition should be stressed in planning curricula and training of auxillaries, nurses and medical staff.

5.   Because of the high mortality in the first 24 hours we recommend special facilities for injections, parentral fluid i e intraperitoneal. together with stress and availability of oral rehydrating fluids i.e. oralyte at referal points.

6.   There is gross inadequacy in identifying malnutrition and we think that weights should be registered as percentages of standard. weight charts should be used.

7.   The nursing staff had to be increased and special attention should be focused on the third shift 8 p m - 6 a.m. as the most burdened shift.

Acknowledgment

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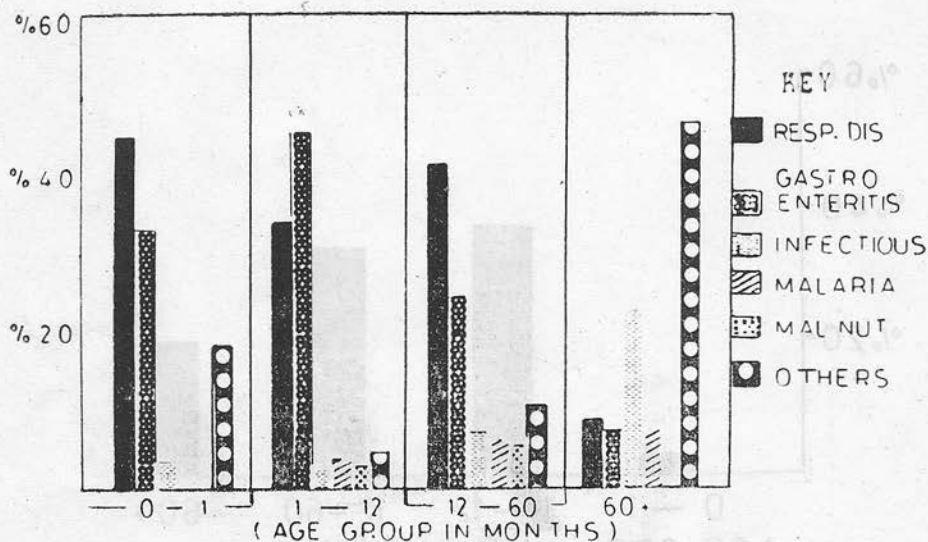   Health* Vol 20, No 4, 191-195

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Fig. I

PERCENTAGE DISTRIBUTION
ACCORDING TO AGE GROUP

Fig. 11

KEY
RESP. DIS
GASTRO ENTERITIS
INFECTIOUS
MALARIA
MAL NUT
OTHERS

(AGE GROUP IN MONTHS)
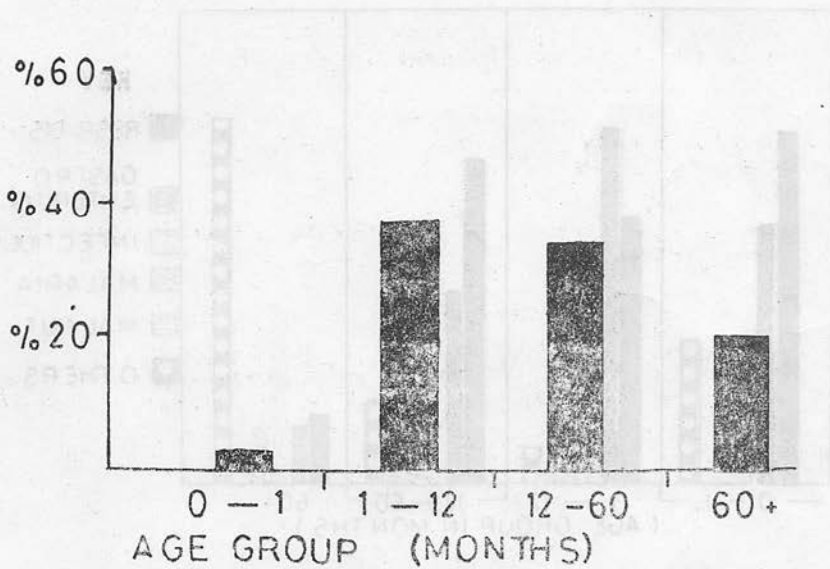
ADMISSION DIAGNOSIS BY
PERCENTAGE RELATED TO AGE GROUBS

Fig. III

PERCENTAGE DISTRIBUTION
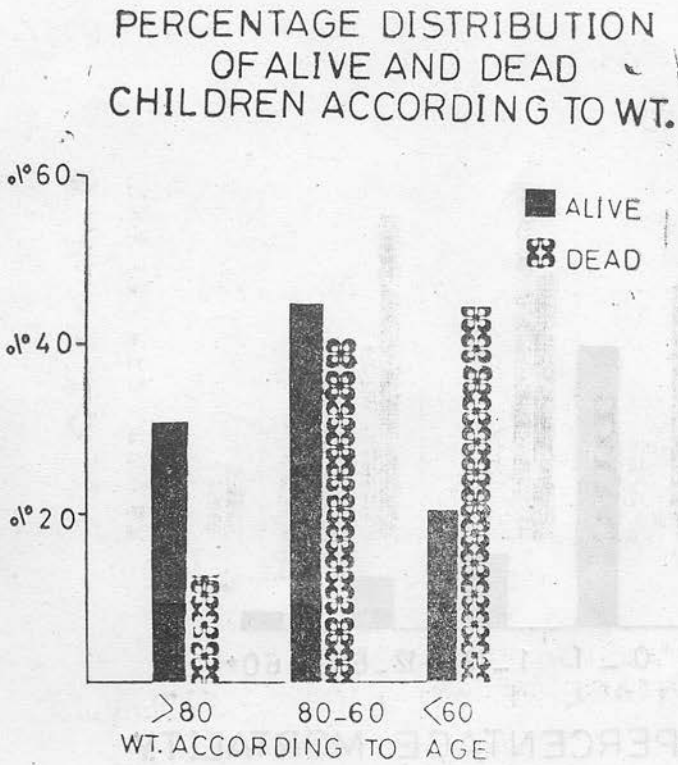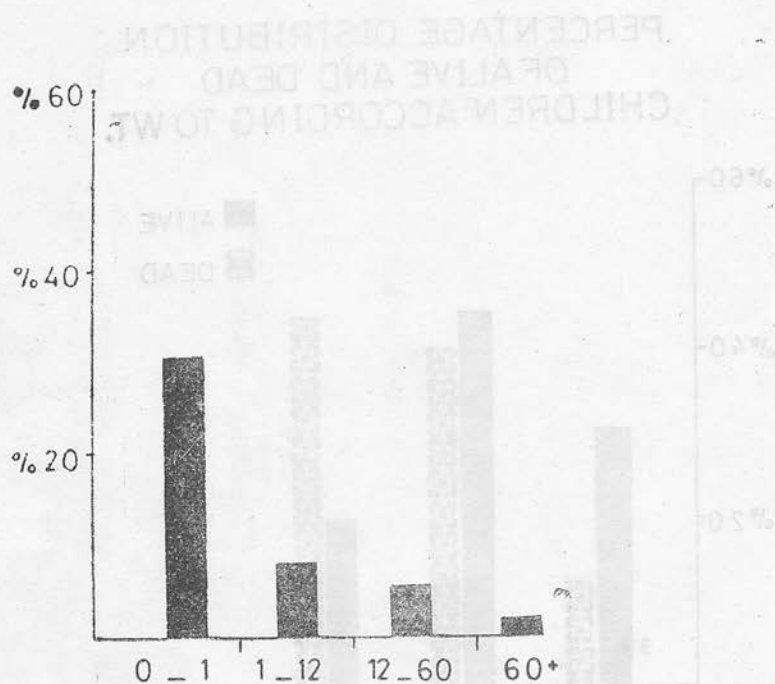OF ALIVE AND DEAD
CHILDREN ACCORDING TO WT.

Fig. IV

PERCENTAGE MORTALITY
ACCORDING TO AGE GROUP

TABLE 1

DISTRIBUTION
BY AREA OF RESIDENCE

Residence								No.
Greater Khartoum	....	....	....	....	....	....	....	711
Geziera	....	....	....	....	....	....	....	160
Omdurman	....	....	....	....	....	....	....	29
Khartoum North	....	....	....	....	....	....	....	34
Others	....	....	....	....	....	....	....	14
N.A. No. Answer	....	....	....	....	....	....	....	52
								1000

TABLE 2

FATE OF ADMISSIONS
TO CASUALTY

							No.	%
Discharged Home	....	....	....	....	....	....	627	62.7
Admission To K.C.H.	....	....	....	....	....	....	166	16.6
Admission To S.U.H.	....	....	....	....	....	....	120	12
Deaths	....	....	....	....	....	....	63	6.3
N.A.	....	....	....	....	....	....	24	2.4
TOTAL	....	....	....	....	....	....	1000	100

TABLE 3

DISTRIBUTION OF CASES ACCORDING TO DEGREE OF MALNUTRITION

No.	> 80%	80%60%	<60%	TOTAL
Dead	3	9	10	22
Alive	97	132	59	288
TOTAL	100	141	69	310

TABLE 4

PERCENTAGE MORTALITY AND CASE FATALITY ACCORDING TO INDIVIDUAL DISEASES

DISEASE	No. Death	%	Case Fatality per 1000
GM	35	54.9	117
Resp D....	19	29.6	58
Maln.	4	6.2	114
Infectious	4	6.2	46
Malaria	1	1.6	18

TABLE 5

NO. OF PTS RECEIVING DIFFERENT TYPES OF TREATMENT

No. = 1000

Treatment	No.
Oral	421
Parentral	623
i.v. Fluids	367
Oxygen	46
Surgery .... ./...	7