Pattern of morbidity and mortality of childhood illnesses at the children emergency room of Abia State University Teaching Hospital, Aba, Nigeria

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Abstract

Introduction: In order to improve the quality of prompt child care and to assess the efforts towards the realization of Millennium Development Goal (MDG)4, a regular appraisal of the morbidity and mortality pattern at our emergency units is important. Findings of this study can inform policy decisions on resource and manpower allocations as well as preventive measures in the bid to reduce morbidity and mortality from childhood diseases.

Objective: To describe the morbidity and mortality pattern of childhood illnesses as seen at the children emergency room of Abia State University Teaching Hospital, Aba, Nigeria.

Methods: This was a descriptive prospective study done over a 5 month period. The ages, gender, duration of illness, diagnosis and disease outcome of all the children aged 29 days to 14 years that presented to the children emergency room were consecutively documented. Data was organized using SPSS Version 20 and Excel 2010.

Results: There were 198 patients, 55.1% of whom were males and 44.9% females. Complicated malaria (50%), sepsis (16.2%) and diarrhoea (6.1%) were the major causes of admission. Mortality rate within the study period was 9.6%, discharges 20.7% while 69.7% were transferred to the children's ward. Of the children who died, 94.8% of the deaths occurred among the 5 years or less. Severe malaria (40%) and septicaemia (25%) were the leading causes of death.

Conclusion: Under-5 mortality still remains high in our environment with malaria infection being the major cause of morbidity and mortality.

Key words: Pattern, Morbidity,Mortality, Children Emergency Room

Introduction

Knowledge of pattern of morbidity and mortality in a health institution is a valuable source of information which aids policy making and intervention strategies. Carrying out such studies in our emergency units will not only assess our preparedness for prompt quality care, but also appraises our efforts towards achieving the MDG-4 of reducing under 5 mortality rate.

Infections and communicable diseases have remained top causes of childhood morbidity and mortality in Africa [1,2]. Pattern of high morbidity and mortality in under 5 children in Nigeria warrants regular review in different health facilities [3,4]. Previous studies were done mainly on children admitted in the major paediatric wards of hospitals [5,6]. With little information from the children emergence room where numerous paediatric emergency cases first report, this study aims at determining the pattern of morbidity, trend and outcome of childhood illnesses treated at the Children Emergency Room of Abia State University Teaching Hospital, Aba, Nigeria, over a period of 5 months.

Materials and Methods

Patients setting: This was a prospective hospital based study conducted over 5 months, from July to November 2008, at the Children Emergency Room of the Abia State University Teaching Hospital (ABSUTH), Aba, Nigeria. ABSUTH serves as a general/referral centre for patients resident in Aba metropolis, and adjoining cities and communities. The Children Emergency Room (CHER) is a 12-bed unit, which caters for paediatric

emergencies (excluding trauma cases). Approximately 700 children register at the facility for treatment each year [7]. It is covered 24 hours daily by a team consisting of a paediatric registrar and 2 house officers, supervised by a senior registrar in the morning shifts; and overseen by 2 consultants. Patients stay in the CHER between 24-48 hours or less before being transferred to the major ward, or discharged.

All children aged 29 days to 14 years whose parents/ guardians gave signed consent were included in the study. Ethical clearance was obtained from the Ethics Committee of ABSUTH, Aba. A study performa was used to record age, sex, and duration of illness before presentation, presenting complaints, diagnosis and outcome. Diagnoses were based on clinical assessment and other necessary investigations. Individual cases were managed according to standard paediatric management protocols. Outcome was classified as 'Died at the facility (CHER), 'transferred to the paediatric ward' or 'discharged'.

Data was analyzed using SPSS Version 20 and Excel 2010. Frequency tables were generated for all major variables of interest. Percentages, ratios and means were also calculated.

Results

A total of 198 children, presenting at the child emergency room, between July and November 2008 were studied. Distribution of the patients by age and gender indicated that 43.9% aged less than one year, 42.9% between one year and five years, while 13.2% were those more than five years of age, median age one year. Distribution by gender was 55.1% males and 44.9% females (Table 1).

Table 1: Distribution of patients by age and gender (n=198)

| Age group (years) | Gender | | Total |
	Male(%)	Female (%)	
< 1	24.2	19.7	43.9
1-5	23.7	19.2	42.9
> 5	7.1	6.1	13.2
Total	55.1	44.9	100

Children were admitted for various types of illnesses in which severe malaria (49.0%) recorded the highest number of patients followed by sepsis (16.7%), diarrhoea (6.1%) and uncomplicated malaria (6.1%) respectively (Table 2).

Table 2: Distribution of various illnesses in children admitted in the Children Emergency Room at ABSUTH (n=198)

Diagnosis	No. of patients	(%)
Severe malaria	97	49.0
Septicaemia	33	16.7
Diarrhoea	12	6.1
Uncomplicated malaria	12	6.1
Bronchopneumonia	11	5.6
Meningitis	6	3.0
Acute severe asthma	6	3.0
P.E.M*	6	3.0
AGN**	3	1.5
Miscellaneous	12	6.1
Total	198	100

PEM* = protein energy malnutrition, AGN** =Acute glomerulonephritis.

Based on the outcome of illness, 69.7% of the patients were transferred to the children's ward, 20.7% were discharged, while 9.6% died (Table 3). Among those that died, 63.2% were males and 36.8% females, infants were 73.7%, between 1 and 5 years 21.1% and only one death occurred among those above 5 years (Table 4).

Table 3: Outcome of the admitted patients

Outcome	No. of patients	(%)
Transferred to wards	138	69.7
Discharged	41	20.7
Died	19	9.6
Total	198	100

Table 4: Disease outcome in patients by age and gender

Ages(years)	Dead	Alive	Total
<1	14(73.7%)	73(40.8%)	87(43.9%)
1-5	4(21.1%)	81(45.3%)	85(42.9%)
>5	1(5.3%)	25(14.0%	26(13.2%)
Sex distribution			
Female	7(36.8%)	82(45.8%)	89(44.9%)
Male	12(63.2%)	97(54.2%)	109(55.1%)

Severe malaria, septicaemia, meningitis, diarrhoea and PEM were the main death causing diseases in that sequence (Table 5).

Table 5: The pattern of diseases causing death in the children presenting to the CHER

Diagnosis	No. of cases	No. of deaths	Mortality (%)
Severe malaria	97	8	42.1
Septicaemia	33	5	26.4
Diarrhoea	12	2	10.5
Meningitis	6	2	10.5
PEM	6	2	10.5
Total	154	19	100

Discussion

Malaria and septicaemia were the major causes of morbidity and mortality and that male infants were more affected, a finding that was comparable to previous related studies [8, 9]. This could be explained by the observations that many families in Nigeria and certain parts of Africa and Asia have a tendency and attitude to seek health care earlier and more frequently for their male children, than for the female children [10, 11], besides the male infants being more susceptible to diseases than females due to difference in immune response. Similarly, morbidity rate (86.8%) and mortality rates (9.6%) were higher in under-fives which compares with other similar studies where more than 80% of the morbidities and mortalities were reported among the under-fives [5, 6, 8, 9, 12].

High malaria morbidity and mortality in our study, like in the previous reports [5,6,8,9,12-17] pointed at a dire need to improve on the disease prevention and intervention strategies and the related health seeking behaviour. Occurrence of severe malaria (49%) compared to the uncomplicated malaria (6.1%) was an indicator that there were delays in medical attention seeking behaviour, which, in turn, could be associated with low level of awareness about disease prevention and interventions. Septicaemia morbidity and mortality were relatively high and this could also be associated with delayed health seeking behaviour.

Bacteria related infection especially those causing diarrhoea and meningitis are preventable diseases that are associated with poor environmental sanitation. This study did not examine the social background of the patients but poor sanitation and low levels of health awareness are associated with poor social-economic status [21]. Poor environmental sanitation and surroundings could influence the onset of pulmonary diseases hence a reasonable number of children suffered from bronchopneumonia in our study.

More recent studies reported low mortality rate and morbidity which is an indicator that improved health delivery systems and improved health awareness in the communities could go a long way towards achieving the MDG-4. Such can only be achieved with total collaboration from all stakeholders like Integrated Management of Childhood Illnesses (IMCI) and National Program on Immunization (NPI).

Protein energy malnutrition comprised 3% of the total cases seen in this study. Malnutrition alone or in combination with other diseases contributed to 4% of the total morbidity in a study done at Enugu [9] which is in a nearby state in South-eastern Nigeria whereas morbidity rate of 2.1% was recorded in Benin [19] in mid-western Nigeria. The low prevalence of PEM at our CHER could be explained by the fact that most malnutrition cases were seen at the children outpatient department and later admitted directly into the main paediatric wards.

We recorded an overall mortality rate of 9.6%, which was comparable to the findings at Enugu, Ibadan and Benin, all in southern Nigeria [9, 19, 20]. A recent study repeated at the same centre in Benin showed a much lower mortality rate of 4.4% as against the earlier Benin findings of 10% [8]. This highlights the need of regular follow up studies, even in the same centre in order to assess our score cards in the fight against child mortality. More than 80% of such deaths occurred among the under-fives which re-emphasizes the need to work for the survival of this age group.

Conclusion

Mortality for the children admitted at the Children Emergency Room at the study hospital was high (9.6%) where severe malaria took a high toll (42.1%). The study did not examine the capacity of the health facility to handle such childhood illnesses but the large number of children presenting with severe malaria was an indicator that there was a significant level of delay for the care takers to seek medical attention. Poor health seeking behaviours are generally associated with poor health awareness of the caregivers, which could also apply in this study. There is therefore a need to put in place programmes which will address the challenges of MDGs 4 & 5 of reducing under-five mortality.

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