

Pattern and Outcome of Presentation at The Children Emergency Unit of A Tertiary Institution in The Niger Delta Region of Nigeria: A One Year Prospective Study

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Abstract

Background : Children emergency unit is a very important in hospitals offering paediatric services. Most of the studies done in Nigeria have been retrospective which most times do not capture the total picture of presentations as some are lost due to poor record keeping.

Aim : To determine the true pattern and outcome of presentations at the children emergency unit in our hospital through a prospective study.

Materials and Method : All presentations at the children emergency unit of Delta State University Teaching Hospital Oghara since its inception in December 2010 till November 2011 were recorded and all the information about each patient from the biodata to the outcome of each presentation were analysed.

Result : A total of five hundred and twenty patients were seen within this period. Non-emergency patients represented 10.2%. There was a male preponderance, and over 90% were five years and below. Malaria was the commonest presentation at 16.7% followed by acute respiratory infections at 14.4%. Mortality was 2.3% with meningitis and severe anaemia each accounting for 33.3%. 66.7% of the total deaths were infants.

Discussion : Malaria is the commonest presentation. Over 10% were "cold cases". Triage will reduce mortality as this will give the emergency physician undistracted attention to more serious patients. Death in infancy still represents the highest contributor to the over-all mortality.

Conclusion : Presentation at the children emergency unit has largely remained the same over the years. However prospective studies should always be done to establish true picture of presentation at children emergency units and efforts to select truly emergency patients will help in rendering better services.

Keyword: Children, emergency, Nigeria

Introduction:

Children emergency unit is a medical treatment facility specializing in acute care of children who present without prior appointment and require urgent attention. They present, either on their own or by ambulance.¹ There are usually guidelines for practitioners for the use of the emergency care unit, but its often misused by non-emergent cases probably because of the prompt and quick services rendered in such facilities.^{2,3} In 1998 in Michigan, children under the age of fifteen, made over two million visits to the emergency department.⁴ Children's pattern of emergency department use have important implications of public policy, clinical practice and the well being of children and their families.⁴ Inappropriate use of the emergency department may produce needless expenditure or may reflect cost-effective patient care. Emergency department for emergent

but preventable conditions may also reflect access barriers to primary care.⁴ In contrast, overtly stringent measures to discourage emergency department use may lead to improper handling of emergent conditions.⁵ Underutilization of emergency cares may ultimately produce needless expenditures due to delay in the provision of appropriate care.⁵

The children emergency unit of the Delta State University Teaching Hospital Oghara was established in December 2010 and this is a one year prospective study of the pattern of diseases in the hospital from December 2010 to November 2011.

Materials and Method:

The records of all the patients seen in the children emergency unit of the hospital were kept. Data documented include the biodata, including the names, ages, sex; the clinical presentations, diagnoses, the investigations treatments and outcomes, including referrals either to the ward, outside, other specialist review or referral discharge or mortalities.

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Results:

A total of five hundred and twenty (520) children were seen, out of which four hundred and sixty four (464) were admitted representing 90.8%. Non-emergency patients seen were 56 representing approximately 10.8% of the patients seen. Of the children seen, three hundred and sixty (360) were males and one hundred and sixty (160) were females, giving a male:female ratio of approximately 2.3:1. Table-I shows the distribution of the patients according to ages groups.

The highest number was among children 1-5 yrs. Of the 520 seen, 190 were between 1-5 yrs giving a percentage of 36.3 % the second largest presentation was in children less than one year with a number of 181 which is 34.6%. It therefore means that over 70% of the patients seen were 5years or less. The age group with the third largest presentation is in the adolescent group that is those more than 10 and upto 16years. The least is in the school age group that is children older than 5 but less than 10years old. The number is 72 out of 520, representing 14.5%. Fig. 1 is a bar chart representing the pattern of disease presentation.

Malaria tops the list as the single most common disease with 87 presenting as malaria (simple or complicated), representing approximately 16.3%. Acute respiratory (ARI) is the next common presentation at 75 or 14.4%. Diarrhoea diseases rank third with a number of 70 or 13.3% of the presentations. Meningitis is the fourth commonest and other illnesses are as shown on the chart. Febrile convulsion, severe anemia and vao-occlusive crises in sickle cell anaemia are the next commonest presentations. Surgical emergencies constitute 4.2% (22 out of 520) of the presentations. Other presentations accounted for 53.8% of the total presentation which is 140 out of the 520. Over 82.7% of the acute respiratory infections is due to bronchpneumonia which is 62 out of the 75 presentating with ARI. Other causes of ARI were upper respiratory infections which is 11 out of 75 (14.7%), aspiration pneumonitis 2 (2.6%). This is shown in table-II.

Table-III represents the pattern of presentation of other illnesses.

The mortality is 12 out of 520 representing approximately 2.3%. Meningitis and anaemic heart failure are the commonest cause of death, accounting for 33.3% each for the deaths as shown in Fig 2. Cerebral malaria and acute watery diarrhoea are the third and fourth commonest each representing approximately 16.7% .

Mortality in males is 10 and 2 in females, representing a male: femal ratio of 5:1. The case fatality in males is 40 % and 1,8 % in females. The mortality was highest in children less than one year at 66.6% representing 8 out of 12 and approximately 92% in the under fives representing 11 out of 12. This is shown in Table-IV.

Table-I

Showing the distribution of patients according to ages

Age	Number	Percentage
0-1year (infants)	181	34.6%
>1-5years (preschool)	190	36.3%
>5-10years (school age)	72	14.5%
>10-16years	77	14.6%
Total	520	100%

Table-II

Showing the Various Presentations of Acute Respiratory Infections

Diseases	Number	Percentage
Broncho-Pneumonia	62	82.7%
Upper Respiratory Tract Infection	11	14.7%
Aspiration Pneumonitis	2	2.6%
Total	75	100%

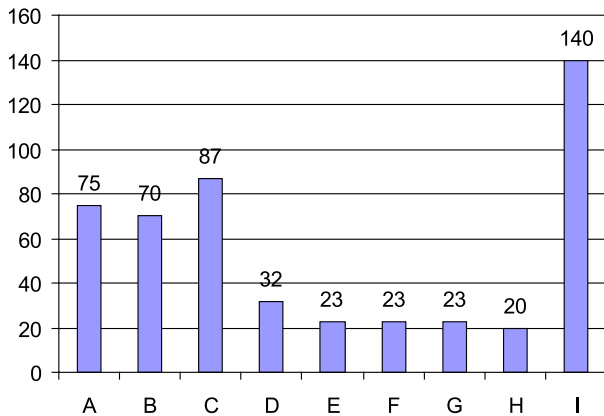
Table-III

Showing the Composition of Other Illnesses

Disease	Number
Others	140
• Intestinal Obstruction	16
• Intussusception	3
• Tetanus	8
• Septicaemia	6
• Alcohol Poisoning	12
• Asthma	7
• Septic Arthritis	3
• Acute Tonsillitis	6
• Measles	5
• Neoplasia	5
• Whilm's Tumour	3
• Neuroblastoma	2
• Cellulitis	3
• Road Traffic Accident	10
• Neonatal Jaundice/Sepsis	5
• Birth Asphyxia	3
• Seizures	6
• Airway Obstruction	5
• Acute Glomerulonephritis	3
• Acute Renal Failure	3
• Tetrolgy Of Fallort	1
• Juvenile Rheumatoid Arthritis	1
• Peptic Ulcer Disease	1
• Pertusis	3
• Cholera	3
• Heat Stroke	1
• Spina Bifida	5
• Tuberculosis	3
• Cerebral Palsy	1
• Airway Obstruction	3
• Steven Johnson's Syndrome	2
• Septic Arthritis	2
Total:	140

Table-IV
The Mortality Rate According to Ages

Age Group	Number
0-<1yr	8
1-5yrs	3
>5-10yrs	1
Total:	12



- A – acute respiratory infections
- B – diarrhoeal diseases
- C – malaria
- D – meningitis
- E – severe anaemia
- F – febrile convulsion
- G – sickle cell crises
- H – surgical emergencies
- I – other illness

Fig-1 : Bar chart representing the pattern of disease presentation

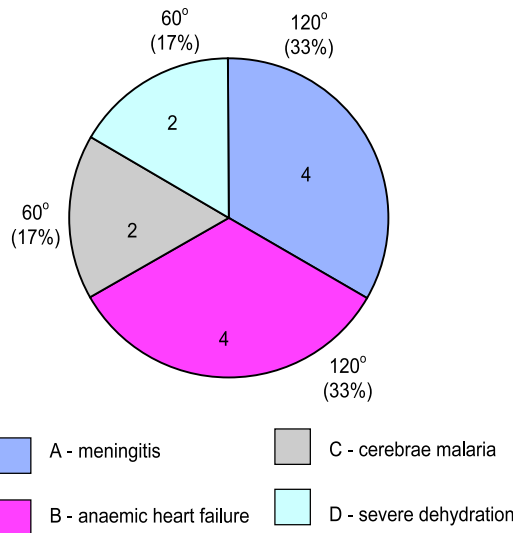


Fig-2 : Showing various mortality rate

Discussion:

This prospective study has shown that malaria remains the commonest presentation in children emergency unit.⁶ This is followed by acute respiratory infections with bronchopneumonia being the second commonest cause of presentation, This is similar to what is found in Uyo but not similar to presentations in other places.^{6,7,8} In the retrospective study at Uyo, malaria was the cause of admission in 56.35% as opposed to 16.3% in our study. Pneumonia was the second commonest just like the Uyo study but different from studies elsewhere.^{8,9} trauma was not a significant presentation as only one patient was seen with road traffic accident. Alcohol was the commonest poison in this study which is very different from the study in Warri in the same Niger Delta. In that study, kerosine was the commonest offending agent in childhood poisoning.

This is because of the free use of local gin called ‘Ogogoro’ or ‘Sapele water’ in that area. It is freely used in any ceremony in that area. Diarrhoeal diseases accounted for the third commonest presentation. Presentation in the under-five age group accounted for over 80% of the cases with the highest case being in the preschool age group (>1-5yrs) which accounted for 190 out of the 520, representing 36.3%. The same experience is shared with the Uyo study.⁶ It is not surprising as severe malaria affects mainly the under-fives because of the low defence against malaria in this age group.¹⁰ One significant observation is presentation of ‘cold’ cases or outpatient consultation for those who do not require emergent treatment. This represented about 10% of the patients seen. This is also a problem in some centres and usually retards the smooth functioning of the children emergency unit.³ Presentation was least in the school age group with 72 out of 520 representing 14.5%. This is even lower than in the adolescent group with 77 out of 520 representing 14.6% This is similar to findings elsewhere.^{11,12} No particular explanation can be aduced for this and the difference is not statistically significant (p>0.05).

The 12 out of the 520 children who presented died representing 2.3%. This is in sharp contrast with presentation at Uyo and other centers in the countries, and other parts of Africa.^{6,13-15} The low mortality rate may be due to early transfer into the wards as this a new institution and has not started suffering the ‘No Bed Syndrome.’ the mortality was higher in the males where 10 out of the 12 who died were boys. The case fatality was also higher in males at 40% compared to 1.8% in females This is similar to findings elsewhere.^{3,16,17} The mortality was highest in children less than one year at 66.6%, but upto 92% if all the uner-fives are put together. This the experience in the developing countries

where under- five mortalities is highest and infant mortality accounting for more than 50% of such deaths.¹⁸⁻²⁰ Infant more recently focus has been shifted to the neonatal age group which accounts for upto 40% of the under five mortality.²¹ Meningitis and anaemic heart failure were the commonest cause of death each accounting for 33.3% of the deaths. Cerebral malaria and severe dehydration from acute watery diarrhoea each was the cause in 2 of the 12 deaths representing approximately 16.7%. Anaemic heart failure as a cause of death was due to nonavailability of blood especially during the early period of the emergency services of the hospital and late presentation to the hospital.

Conclusion:

Malaria remains the commonest children presentation in the emergency unit and most of the presentations occur in those 5 years and below. The incidence will be reduced if the millenium development goals are vigorously pursued. Meningitis remains a common cause of mortality and also in the under fives. environmental sanitation and immunization will help reduce the incidence and mortality from it. Adequate blood banking and the change in the public attitude towards blood donation together with improved nutrition will help reduce the incidence of severe anaemia.

Finally efforts should be made to restrict presentations at the emergency units to acute and sudden illnesses which are usually life threatening without early intervention.

Conflict of Interest : None

Acknowledgement:

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