ORIGINAL ARTICLE

MORBIDITY AND MORTALITY PATTERN IN A CHILDREN EMERGENCY ROOM IN CALABAR, NIGERIA.

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ABSTRACT

Background: Nearly 8 million children under age five died worldwide in 2010.Tragically, more than half of these childhood deaths are preventable with existing tools and interventions. Poor countries bear a disproportionate burden of child mortality where children are more than 10 times more likely to die before reaching the age of five - this is unacceptable. The Sustainable Development Goals (SDGs) adopted by the United Nations in 2015 aims to ensure healthy lives and promote well-being for all children in the world.

The study aims to document the morbidity and mortality pattern seen at the Children Emergency Room (CHER) of the University of Calabar Teaching Hospital (UCTH), Calabar.

Patients and Method: A retrospective study of all ill children admitted into CHER form 1st January to 31st December 2012. The records were reviewed from the admission register and information retrieved included the patient's age, sex, diagnosis and outcomes which in this case were discharge, transfer out, Discharge Against Medical Advice (DAMA), Absconded and death.

Results: A total of 2,621 patients were admitted, 1,567 (59.8%) were males and 1,051 (40.1%) females with M:F of 1.4:1. Patients below five years constituted 81.9% of cases. The common indications for admission were respiratory tract Infection, Malaria, Diarrhoeal diseases, HBSS crisis, Septicaemia and Central Nervous System (CNS) Infections. The common causes of mortality were Septicaemia, Severe malaria, Pneumonia, CNS Infections. The mortality rate was 2.0%, compared to 5% in an earlier study in the same center by Antia-Obong, with 61.5% being among children less than one year old. The discharge against medical advice (DAMA) rate was 3.8% and 71.9% of the patients left the unit with 72 hours.

Conclusion: childhood mortality rate is high, worse in poor countries were children are more likely to die from preventable diseases. There is a decline in mortality rate in the current study but government need to address air pollution in Calabar and strengthen its secondary health care to support the Children Emergency Room and commit to the Sustainable development Goals (SDG) in the battle for our children survival.

Key words: Morbidity, mortality, Pattern, Children Emergency Room, Calabar

INTRODUCTION

According to UNICEF, nearly 8 million children under age five died worldwide in 2010.[1] Tragically, more than half of these childhood deaths are preventable with existing tools and interventions. Existing vaccines alone can prevent an estimated 25% of under-five deaths.[2]

Poor countries bear a disproportionate burden of child mortality where children are more than 10 times likely to die before reaching the age of five than children in developed countries.[1] Over 80% of the total deaths among children under age five occur in Sub-Saharan Africa.[3] The large number of preventable deaths among children, particularly in poor countries, is unacceptable. The good news is that solutions exist to improve child health, and increase child survival.

Substantial global progress has been made in reducing child deaths since 1990. The number of under-5 deaths worldwide has declined from 12.7 million in 1990 to 5.9 million in 2015. Since 1990, the global under-5 mortality rate has dropped 53%, from 91 deaths per 1,000 live births in 1990 to 43 in 2015.[4] The situation in sub-Saharan Africa is quite promising as a substantive acceleration in decline of under-5 mortality has been recorded. Its annual rate of reduction increased from 1.6 % in 1990s to 4.1 % in 2000–2015. The remarkable decline in under-5 mortality since 2000 has saved the lives of 48 million children.[4]

Between 1990 and 2015, 62 of the 195 countries with available estimates met the Millennium Development Goals (MDG) 4 target of a two-thirds reduction in the under-5 mortality rate. Among them, 24 are low- and lower-middle income countries. Despite these gains, progress was insufficient to reach MDG 4 globally and in many regions. Wide gaps in child mortality across sub-groups or areas within countries have been documented, warranting a call for

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an equity-focused approach to reducing child mortality. Children are at greater risk of dying before age 5 if they are born in rural areas, poor households, or to a mother denied basic education. [4]

The Sustainable Development Goals (SDGs), adopted by the United Nations in 2015, aim to ensure healthy lives and promote well-being for all children in the world. The SDG goal 3 target 3.2 is to end preventable deaths of newborns and under-5 children by 2030. [4] Strengthening health systems to provide simple and affordable interventions to all children will save many young lives. Health sector and multi-sectoral efforts are also needed to overcome the inequalities and the social determinants of health.[4]

The Children Emergency Room (CHER) of the University of Calabar Teaching Hospital was set up to care for all children aged 28 days to 18 years presenting with severe illnesses. Documentation of the pattern of morbidities that present to the unit and the likely causes of mortality among children admitted into the unit will help in health care delivery planning, auditing and upgrading to reduce fatality. The morbidity and mortality pattern in children admitted into the Children Emergency Room of University of Calabar Teaching Hospital, Calabar was last done about two decades ago, hence there is the need to carry out this study to evaluate if there has been a change in the indices and to propose measures to improve health care services provided.

PATIENTS AND METHODS

This was a one year retrospective study carried out in the Children Emergency Room of University of Calabar Teaching Hospital, Calabar between the periods 1st January 2012 to 31st December 2012.

The unit earlier described by Antia-obong[13] in 1991 has undergone a lot of major changes including staff strength, movement to the permanent site of the hospital with more bed space. The unit now has a 30 bed capacity in-ward, a consulting room, resuscitation/procedure room equipped with two nebulizers machines, a steam inhalation machine, four pulse Oximeters and suctioning machines (two each of manual and electric powered). The unit has a functional piped oxygen lines supplied from the central oxygen plant with two standby filled oxygen cylinders. Within the unit is the Diarrhoea Training and Treatment Unit (DTTU) of six bed capacity. Attached to CHER is a side laboratory which is able to carry out malaria parasite test, Random blood sugar, packed cell volume and urinalysis. The unit also has the full support of the routine hospital laboratory, blood bank, mobile ECG/ Paediatric echocardiogram and radiological services. It maintains a revolving emergency drugs tray.

During the official work hours of 8am to 4pm, the unit is manned by two senior registrars, two registrars and five Interns. A consultant Paediatrician does a ward round daily in CHER. During the call hours, a house officers and a registrar are the first on call, with a senior registrar that does not sleep in and a supervising consultant. Both working hours are complimented by four Paediatric nurses in CHER and two in DTTU during each shift duty with continuous in-hospital training and retraining. The policy of the unit is to ensure that patients are discharged within 72 hours except the critically ill ones that needs continuous critical care.

Ethical approval was obtained from the hospital Health and Research Ethics committee.

The records of the unit from 1st January to 31st December 2012 were reviewed from the admission register and information retrieved included the patient's age, sex, diagnosis and outcomes which in this case were discharge, transfer out, Discharge Against Medical Advice (DAMA), Absconded and death.

Data analysis

Data was entered into Excel spread sheet and analysed with SPSS computer software version 18.

Results were presented as frequencie in tables, figures and cross tabulations were done where necessary with chi square and t-test. P value <0.05 was considered significant.

RESULTS

The unit admitted a total of 2,621 in the period under review, out of which 2,105 (80.3%) were admitted into CHER in-ward and 516 (19.7%) into the DTTU. Overall, 81.9% of the patients admitted were less than 5 years old, 1,567 (59.8%) were male while 1051 (40.1%) were female with a M:F of 1.4:1. The differences were not statistically significant.

TABLE I: Frequency distribution of Sex and Age category of children admitted

		Agecat									
		<1year	%	1-5years	%	>5-12years	%	>12years	%	Total	%
Gender											
	male	844	53.9	456	29.1	216	13.8	51	3.3	1567	59.8
	female	537	51.1	306	29.1	154	14.7	54	5.1	1051	40.1
Total		1384	52.8	762	29.1	370	14.1	105	4.0	2621	100.0

(x^2= 9.502 df= 6 p=0.147)

TABLE II: frequency distribution of Sex of the children and Unit admitted

	UNIT				
	CHER	%	DTTU	%	Total
Gender					
male	1273	81.2	294	18.8	1567
female	830	79.0	221	21.0	1051
Total	2106	80.4	515	19.6	2621

(x^2= 2.780 df= 2 p=0.249)

Morbidity pattern

Figure 1 showed the morbidity pattern in the patients with Respiratory tract infection accounting for 748 (28.6%) of the cases comprising of Pneumonias, Upper Respiratory Tract Infection (URTI), Asthma and Bronchiolitis.

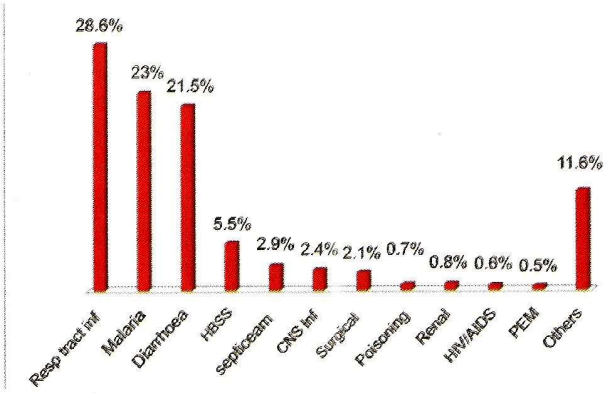

Figure 1: Mortality pattern in admitted patients

Outcome

Figure 2 shows that out of the 2,621 patients admitted, 1,766 (67.4%) were discharged, 610 (23.3%) were transferred, 100 (3.8%) were classified as DAMA, 37 (1.4%) absconded and 52 (2.0%) died.

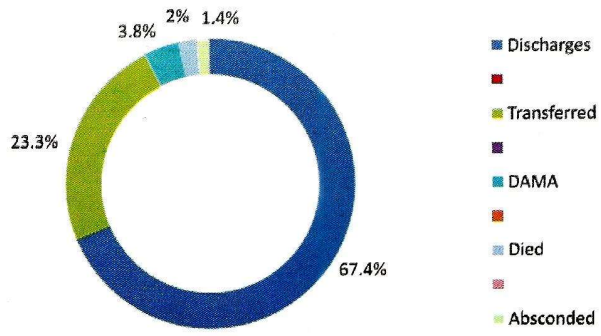

Figure 2: Outcome

Causes of mortality.

Figure 3 shows the distribution of the causes of death in this study with Septicemia, malaria, Pneumonia and CNS infections being the leading causes of mortality.

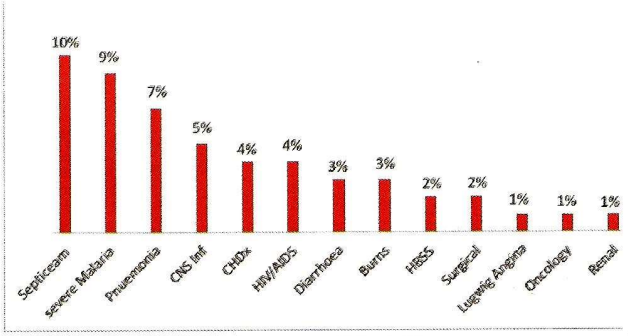

Figure 3: Distribution of causes of Mortality

Distribution of mortality with age category. This shows the frequency distribution of mortalities within the age categories of the study population.

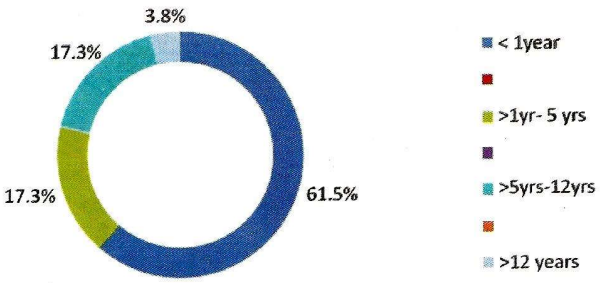

Figure 4: Distribution of mortality with age category.

DISCUSSION

In this study, 80.3% of the 2621 patients were admitted into CHER in- ward and 19.7% into the DTTU. Overall, 81.9% of the admission were patients less than 5 years old, 59.8% were male while 40.1% were female with a M:F of 1.4:1. This is in keeping with similar studies.[5-8]

The morbidity pattern from this study showed that Respiratory tract infections was the commonest indication for admissions followed by Malaria (23.0%) and then Diarrhoeal diseases (21.5%) while HIV/AIDS (0.6%), Accidental poisoning (0.7%) and Protein Energy Malnutrition (0.5%) were the least common indications for admission in the University of Calabar Teaching Hospital. Respiratory Tract Infection in this series surpassed Malaria infection as the commonest indication for admission followed by Diarrhoeal disease. This shows a reversal in order of incidence when compared to the earlier study[5] in the same center and similar study in other centersi[6-9]. However, the documented four leading indications for admission in Children Emergency Rooms, namely Respiratory tract infections, Malaria, Diarrheal disease and Septiceamia, have not changed.[1-16] This rising trend in incidence of Respiratory tract infection may be related to the activities of the multinational cement industry (UNICEM) located in Akpabuyo Local Government Area and the multiple quarry sites in Akampka Local Government Area, all bordering Calabar. The only Tertiary hospital in the state, UCTH, is located in Calabar and sees to the health challenges of patients from across the state and beyond.

The patient's outcome in this study showed that 67.4% children were treated and discharged from the unit while 23.3% were transferred out from the unit. Majority of the patients (88.7%) were transferred to the Paediatric ward and surgical ward/ theatre (5.0%) for continued care. This finding is not too different from the UK study[9] but a contrast from Benin study[10] where 30.4% were discharged home and 65.2% transferred to the Paediatric ward. The Discharge Against Medical Advice rate of 3.8% was similar to the study in Abakaliki[6] but lower than 4.8% in the earlier study in Calabar[5] – this may be attributed to patient's parents' satisfaction with treatment offered and enhanced health awareness among parents due to better access to formal education. This study also revealed that 71.8% of the patients admitted exited the unit within 72 hours of admission. This timely decision on patient outflow from the children emergency room, is in keeping with the unit policy to see promptly all children presenting with acute illnesses, observe and send home those that are not ill enough to be admitted, discharge those that recovered tremendously and also to transfer out the ones that need continuum of care in the Paediatric ward, Gynaecology ward, Intensive care unit, Surgical ward or other specialist wards as the case demands.

The mortality rate from other similar studies ranged between 5-11%[5-16] while this study showed a mortality rate of 2.0% with males contributing 67.3% and females 32.7%. Children less than one year old accounted for 61.5% of this mortality. This study shows a significant reduction in mortality when compared to the 5% in an earlier study in 1988 [6]. The earlier study admitted 1,808 patients and recorded 90 deaths while this study admitted 2,621 which is higher and recoded 52 deaths which is obviously lower. The lower incidence could be due to early presentation of ill children by their parents, increased number of suitable staff in the unit, equipping of the hospital units and laboratory support by VAMED project since the hospital moved to the permanent site which was not available as documented in the earlier study [6]. The causes of deaths recorded in this study were in descending order due to Septiceamia, Severe Malaria, Diarrhoeal disease and HBSS. This is not too different from other similar studies even though the sequence varied. Also notable is that diarrhoeal disease contributed 12 deaths out of 204 admissions in the earlier study [6] but just three death in this study which is laudable as it proves the usefulness of the scientific and practical tool, ORS, in preventing mortality from diarrhoea and the vital role creation of DTTU played in education of parents and health workers in treatment of diarrhoeal disease.

CONCLUSION

Preventable and treatable diseases remain the major indication for admission and cause of death in the Children Emergency Room in our center. Concerted effort made in recent years by the health care providers has lead to a decline in the mortality rate despite an increment in the disease burden. There is therefore, need for the Nigerian Government to Strengthen her health care delivery services, to address the threat of environmental pollution and to make conscious and time bound commitment to the Sustainable Development Goals (SDGs), adopted by the United Nations in 2015 in other to harness for our children the aim of the SDG which is to ensure healthy lives and promote well-being for all children in the world.

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