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Pattern of Paediatric Surgical Admissions in a Tertiary Hospital in a Semi – Urban Community in the Niger Delta: a Three- Year Review

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Authors' contributions

This study was carried out in collaboration between both authors. Authors PJA and IG designed the study and collected data. Author PJA wrote the first draft of the manuscript and performed the statistical analysis and managed the literature searches. Both authors read and approved the final manuscript.

Research Article

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ABSTRACT

Aims: To determine the pattern of surgical diseases among children on admission at the Niger Delta University Teaching Hospital, Okolobiri, Bayelsa State, Nigeria.

Study Design: A retrospective study.

Place and Duration of Study: All patients admitted into the children surgical ward of the Niger Delta University Teaching hospital between January, 2009 and December, 2011 were studied retrospectively.

Methodology: Essential information was obtained from ward admissions register and patients' case notes and recorded in a pro forma.

Results: There were a total of 201 paediatric surgical admissions during the period. The mean age was 4.9 ± 4.3 years. There were 135 (67.2%) males and 66 (32.8%) females, giving a Male: Female ratio of 2:1. The commonest diagnoses at admission were congenital anomalies 76 (37.8%), trauma 57 (28.4%), surgical infections 27 (13.4%), gastrointestinal conditions 25 (12.5%), and others 16 (8.0%). The mean duration of

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admission was 8.6 ± 11.2 days. There were 4 deaths giving an overall mortality of 1.99%.
Conclusion: There is a broad spectrum of surgical childhood conditions requiring admission. We need improved paediatric surgical manpower and a dedicated paediatric surgical unit to manage these conditions.

Keywords: Paediatric; surgical; admissions; Niger Delta.

1. INTRODUCTION

Until recently, the Niger Delta region of Nigeria had largely been neglected; with few roads and other amenities like electricity and portable water that come with modernization. This region has therefore been inaccessible to medical research. There is therefore a paucity of published data on the pattern of surgical diseases in this region. Although few, there are however studies on the pattern of paediatric surgical admissions in other parts of Nigeria and Africa [1,2,3,4,5]. Such studies however, may not completely reflect the pattern of paediatric surgical admissions in this part of Nigeria because of the peculiarity of the Delta environment which is largely remote and polluted by decades of oil exploration. [6,7]. The people in this region are poor and live in this polluted environment with unsafe water from the polluted ecosystem.

This study was therefore undertaken to ascertain the pattern of paediatric surgical admissions in the Niger Delta University Teaching hospital, Okolobiri which is a semi-urban town in the Niger Delta.

2. MATERIAL AND METHODS

The Niger Delta University Teaching Hospital (NDUTH) is a new teaching hospital which evolved from a General Hospital. Situated in the semi-urban community of Okolobiri, it is the only tertiary hospital in Bayelsa State in the heart of the Niger Delta, although there is a federal Medical centre situated in the State capital. It is a fairly small facility of about 120-bed capacity. It caters for the health needs of the state; particularly its surrounding communities.

This is a retrospective study extending from 1st of January, 2009 to the 31st December, 2011. All admissions into the Paediatric Surgical ward during this period were included in this study.

Information including patients' age, sex, diagnosis, number of days on admission, outcome of admission was obtained from the ward record books and patients' case files and recorded. Such data were analyzed using the Statistical Package for Social Sciences (SPSS) version 15.

3. RESULTS

From January, 2009 to December, 2011, a total of 201 paediatric surgical patients were admitted into the Paediatric ward of the Niger Delta University Teaching Hospital, Okolobiri. The ages ranged between 1 day and 16 years. The mean age at admission was 4.9 ± 4.3 years. The mean duration of hospitalization was 8.6 ± 11.2 days. The shortest duration of hospital stay was 1 day while the longest duration was 90 days.

Of the 201 children, there were 135 (67.2%) males and 66 (32.8%) females. This gives a male: female ratio of 2.04:1.

The various diagnoses were grouped into 5 categories as summarized in Table 1. The commonest congenital anomalies were inguinal hernia 32 (15.9%), hydrocoele 8 (4.0%), Hirschprung's disease 6 (3.0%), undescended testis 5 (2.5%), hypospadias 4 (2.0%) and constrictive bands 4 (2.0%). (Table 2).

Table 1. Causes of Paediatric surgical admissions

Diagnosis	Number of admissions	Percent
Congenital anomalies	76	37.8%
Trauma	57	28.4%
Surgical infections	27	13.4%
Gastrointestinal problems	25	12.5%
Others	16	8.0%
Total	201	100.0%

Table 2. Types of Congenital anomalies in Children admitted

Diagnosis	Number of admissions	Percent
Inguinal Hernia	32	15.9%
Hydrocoele	8	4.0%
Hirschprung's Disease	6	3.0%
Undescended Testis	5	2.5%
Hypospadias	4	2.0%
Constrictive bands	4	2.0%
Cystic hygroma	3	1.5%
Syndactyly	2	1.0%
Anorectal malformation	2	1.0%
Thyroglossal cyst	2	1.0%
Omphalocele	1	0.5%
Prune belly syndrome	1	0.5%
Polydactyly	1	0.5%
Malrotation of the gut	1	0.5%
Duodenal atresia	1	0.5%
Haemangioma	1	0.5%
Subtotal	76	37.8%

The commonest causes of injuries were burns 29 (14.4%), injury to the eyes 9 (4.5%) and head injury 8 (4.0%). (Table 3).

Table 3. Types of Trauma

Diagnosis	Number of admissions	Percent
Burns	29	14.4%
Eye injury	9	4.5%
Head injury	8	4.0%
Lacerations	4	2.0%
Fractures (femur/radius)	4	2.0%
Abdominal injury	1	0.5%
Dislocation	1	0.5%
Pneumothorax	1	0.5%
Subtotal	57	28.4%

Surgical infections were the third commonest cause of admission accounting for 13.4% of all admissions (Table 4).

Table 4. Types of Surgical infections

Diagnosis	Number of admissions	Percent
Osteomyelitis	6	3.0%
Typhoid perforation	4	2.0%
Cellulitis	3	1.5%
Pyomyositis	2	1.0%
Mastitis	2	1.0%
Furunculosis	3	1.5%
Septic arthritis	1	0.5%
Tuberculosis of the spine	1	0.5%
Umbilical sepsis	1	0.5%
Gluteal warts	1	0.5%
Parotitis	1	0.5%
Otitis media	1	0.5%
Gluteal abscess	1	0.5%
Subtotal	27	13.4%

Table 5, shows gastrointestinal conditions which accounted for 25 (12.5%) of all admissions. Appendicitis was the leading cause of gastrointestinal problems 16 (8.0%). Other causes accounted for 8% of all admissions (Table 6).

Table 5. Types of Gastrointestinal conditions

Diagnosis	Number of admissions	Percent
Appendicitis	16	8.0%
Intestinal obstruction	2	1.0%
Pancreatic pseudocyst	2	1.0%
Incisional hernia	1	0.5%
Enterocutaneous fistula	1	0.5%
Rectal prolapse	1	0.5%
Upper gastrointestinal bleeding	1	0.5%
Pyloric stenosis	1	0.5%
Subtotal	25	12.5%

Table 6. Other causes of admission

Diagnosis	Number of admissions	Percent
Leg ulcer	6	3.0%
Foreign body(ear & nose)	3	1.5%
Cataract	2	1.0%
Conjunctival cysts	19	0.5%
Implantation cyst	1	0.5%
Haematuria (unknown cause)	1	0.5%
Circumcision complication	1	0.5%
Submandibular cyst	1	0.5%
Urethral prolapse	1	0.5%
Subtotal	16	8.0%

4. DISCUSSION

This study gives an insight to the pattern of paediatric surgical diseases seen in the Niger Delta region of Nigeria. We observed that the top three causes of admission in paediatric surgery were congenital anomalies 37.8%, trauma 28.4% and surgical infections 13.4%. These 3 categories of conditions alone accounted for almost 60% of all surgical admissions in children. Other studies in Nigeria and other parts of Africa also rank these 3 conditions as the commonest reasons for admission into the paediatric surgical ward [1,2,3,4,5]. Apart from the study from Western Sudan [5], all others list trauma as the leading cause for admission.

In our study, congenital anomalies were the commonest cause for admission. Other studies do not give congenital anomalies a similar prominence even though most studies rate it among the top three causes of hospital admission in paediatric surgical patients [1,2,3,4]. A study done at El Obeid hospital, in Western Sudan demonstrates a similar pattern as our study. The commonest cause of admission were as a result of congenital anomalies 40.2%, this was followed by trauma 32.3% and then surgical infections 24.9% [5]. Congenital anomalies even though mild, were quite common in this study. Congenital anomalies are more common than we imagine. A South African study reports congenital anomalies in 11.8 per 1000 live births [8]. A more recent study at Enugu in South – East Nigeria studied congenital anomalies among newborns admitted into the special care baby unit. They found that 2.8% of the neonates had some form of congenital anomalies [9]. This may be high as the study population were sick newborns only. We also found that congenital inguinal hernias alone accounted for 15.9% of all admissions making it by far the leading cause of congenital anomalies and the single leading diagnosis at admission.

Even though trauma is an important cause of hospitalization in most of Africa, it was a distant second behind congenital anomalies in this study. Thanni et al in South western Nigeria observed trauma to be the leading cause of hospitalization accounting for 36.7% of all paediatric surgical admissions [4]. Other studies in Africa support this finding [1,2,3]. In fact, a Gambian study [3] reported that 46.9% of all admissions into the Paediatric surgical wards were as a result of trauma. This is quite high as it is about twice our own percentage. Also, most cases of trauma in our study were as a result of Burns 50.9%. This is at variance with findings from other studies where burns accounted for much less. Most cases of burns were from hot water and adulterated kerosene. There is a widespread practice of illegal and crude refining of petroleum products with contamination of Kerosene in the Niger Delta.

Kerosene is a main source of energy for cooking in our community. This has resulted in explosions resulting in injuries to both adults and children. There were few cases of other injuries like fractures, abdominal trauma and head injuries which were mostly attributable to road traffic accidents. Our study was done in a rural environment where roads and cars are few. The major means of transportation is by canoe. This is in agreement with the general belief that injuries particularly from road traffic accidents were much higher in urban areas as compared with rural areas in Africa. This may be a contributing factor in making trauma come behind congenital anomalies in our study.

A Ugandan survey [10] observed a much higher mortality rate from injuries in the urban Uganda as compared with rural Uganda. The annual mortality from injuries in the urban areas studied was 217 per 100,000 as compared with 92 per 100,000 in the rural areas.

Another major diagnostic category is surgical infections. Surgical infections accounted for 13.4% and were the third commonest indication for admission. Various studies in Nigeria and other parts of Africa agree with this [1,2,3,4,5].

Appendicitis was the leading diagnosis in this category of gastrointestinal conditions. It was the third commonest diagnosis at 8.0% in total, behind inguinal hernia 15.9% and burns 14.4%. Bickler and Sanno-Duanda[3] in Gambia found appendicitis to be the twenty-third commonest diagnosis. They explained that appendicitis was not common in the Gambia before the age of 14 years. However, Doumi and Abdelrahman [11] found appendicitis to be responsible for 53.8% of all surgical infections among school – age children at the El Obeid hospital in Western Sudan.

5. CONCLUSION

There is a wide spectrum of paediatric surgical conditions in the Niger Delta region. Common causes of admission into the paediatric surgical wards are congenital anomalies, trauma and surgical infections which together account for about 60% of such admissions.

6. RECOMMENDATIONS

Our study reveals a wide spectrum of paediatric surgical conditions. There is therefore the need to employ and train paediatric surgeons and specialized nurses and the creation of paediatric surgical units separate from the medical units; this is a problem in parts of Africa [12]. It is believed that this would improve both morbidity and mortality among paediatric surgical patients [13].

Also, much is said about improving child health with a focus on childhood medical diseases while forgetting the aspect of surgical challenges facing children. It is our hope that this is urgently corrected in order to achieve an over-all success in reducing both mortality and morbidity in children in Africa.

CONSENT

Not applicable.

ETHICAL APPROVAL

The Ethical Committee of the Niger Delta University Hospital, Okolobiri gave approval for this study to be undertaken.

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COMPETING INTERESTS

Authors declare that there are no competing interests.

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