



Pattern and Outcome of Paediatric Surgical Admissions in a New Tertiary Hospital in Northwestern Nigeria

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Abstract: The pattern and outcome of pediatric surgical admissions may be crucial to policy formulation in a new tertiary hospital. This study reports the pattern and outcome of pediatric surgical admissions in Northwestern Nigeria. This is a retrospective review of all medical records of patients admitted with pediatric surgical pathologies over a 14 months period. Data was extracted from the admission records and case notes of children admitted in the hospital during the study period. Information obtained included the patients' age, sex, diagnosis, duration of admission and outcome. The data obtained was analyzed using SPSS version 15.0 for Windows. There were 191 pediatric surgical admissions representing 12.5% of the total pediatric admissions with a mean age of 71 months and a male to female ratio of 1.2:1 (M 105: F86). Sixty percent of the patients were admitted to female surgical ward, others were admitted to neonatal intensive care unit, male surgical ward, pediatric medical ward and emergency pediatric unit due to shortage of manpower and lack of pediatric surgical facilities. The most common diagnostic categories were congenital anomalies 35.1% (67/191), trauma 30.9% (59/191) and surgical infections 29.8% (57/191). Eighty percent of our patients did well and were discharged. However, we recorded a mortality rate of 9.9%. Our report shows that wide spectrums of pediatric surgical conditions are seen in our hospital with congenital anomalies being the most common. Most of our patients were treated and discharged.

Keywords: Pattern, Outcome, Pediatric Surgical, Admission

1. Introduction

Hospital admission data can be a useful tool for assessing the pattern of diseases within a population. [1, 2] With very little amount of data collection, a meaningful insight can be gained into the epidemiology of diseases especially in low resource settings like Nigeria. [1] Data on epidemiology of pediatric surgical diseases will be invaluable in the immediate and long term health care planning. This will give

room for adequate budgetary provision to meet specific needs of this group of patients. [3] This is even more true in a new teaching hospital.

Within the last two decades more data on epidemiology of childhood surgical admission in Africa has become available [1-4] In Nigeria most of the studies on pattern of pediatric surgical admissions were done in the southern part of the country. [2-4].

This study reports the spectrum of pediatric surgical diseases requiring hospital admission and the outcome in a

new teaching hospital in Northern Nigeria.

2. Methods

This is a retrospective review of all medical records of children less than 15 years of age admitted with pediatric surgical pathologies over a period of 14 months (April 2015-June 2016).

The study center is a new university teaching hospital with a total bed capacity of 240. There is no dedicated pediatric surgical ward; however, Pediatric surgical patients are admitted to pediatric medical ward and female surgical ward where 4 beds have been allocated irrespective of the admitting sub specialty.

Data was extracted from the admission records and case notes of all children admitted into the hospital during the study period. Information obtained included age, sex, diagnosis, duration of admission and outcome.

The outcome measures considered were discharge, death, left against medical advice (LAMA) and referral.

The data obtained was analysed using SPSS version 15.0 for Windows.

3. Results

There were 191 pediatric surgical admissions representing 12.5% (191/1,528) of the total pediatric admissions. The age range was 1 day – 15 years with a mean age of 71 months (5.9 yrs).

Male to female ratio of 1.2:1 (M 105: F 86).

Sixty percent of the patients were admitted to female surgical ward, others were admitted as shown in Table 1.

Table 1. Ward of admission of pediatric surgical patients.

WARD OF ADMISSION	FREQUENCY	PERCENTAGE
Female Surgical Ward	114	60.0
Neonatal	36	18.8
Male Surgical Ward	20	10.5
Emergency Paediatric Unit	15	7.9
Paediatric Medical Ward	6	3.1
TOTAL	191	100

The most common diagnostic categories were congenital anomalies 35.1% (67/191), injuries 30.9% (59/191), and surgical infections 28.3% (54/191). Others are as shown in Table 2.

Table 2. Indications for admission.

DISEASE	FREQUENCY	PERCENTAGE
CONGENITAL		
Midgutmalrotation	17	8.9
Omphalocele	8	4.2
Hirschsprung's disease	7	3.7
CTEV	6	3.1
Umbilical hernia	5	2.6
NTD	5	2.6
ARM	4	2.1
Cleft lip/palate	2	1
Intestinal atresia	2	1
Others	11	5.8
Subtotal	67	35.1
TRAUMA		
Burns	23	12
Multiple injury	13	6.8
Long bone fracture	9	4.7
Head injury	7	3.7
Soft tissue injury	6	3.1
Blunt abdominal injury	1	0.5
Subtotal	59	30.9
SURGICAL INFECTIONS		
Peritonitis	23	12
Appendicitis	16	8.4
Osteomyelitis	5	2.6
SSI	4	2.1
Empyema thoracis	4	2.1
Skin ulcers	2	1.0
Subtotal	54	28.3
GASTROINTESTINAL TRACT		
Intussusception	6	3.1
Rectal prolapse	1	0.5
Entero-cutaneous fistula	3	1.6
other	1	0.5
Subtotal	11	5.8
TOTAL	191	100

Of the 191 patients, 110 (57.6%) had operative treatment while the rest were managed non-operatively. Mean duration of admission is 8.64 days with a Standard Deviation of 10.31 and a range of 1-60 days.

Eighty percent of our patients did well and were discharged. Table 3.

Table 3. Outcome of admission.

OUTCOME	FREQUENCY	PERCENTAGE
DISCHARGED	153	80.1
DIED	19	9.9
LAMA	11	5.8
REFERRED	8	4.2
TOTAL	191	100

The mortality rate was 9.9% (19/191). The breakdown of causes of mortality by disease condition is as shown in Table 4.

Table 4. Breakdown of mortality by disease conditions.

DIAGNOSTIC CATEGORY	DIAGNOSIS	FREQUENCY	PERCENTAGE
Injuries	Burns	6	31.6
	Multiple injury	1	5.3
	Long bone fracture	1	5.3
	Subtotal	8	42.1
Surgical infections	Peritonitis	5	26.3
	Empyema thoracis	1	5.3
	Subtotal	6	31.6
Congenital anomalies	Omphalocele	2	10.5
	Intestinal atresia	2	10.5
	NTD	1	5.3
	Subtotal	5	26.3
	TOTAL	19	100

4. Discussion

This study gives an insight to the pattern and outcome of pediatric surgical admissions in northern Nigeria. Pediatric surgical admissions represented 12.5% of total pediatric admissions in this study; this is slightly higher than the 10.4% and 11.3% reported in Ethiopia and the Gambia respectively but lower than the 15.5% reported in western Nigeria. [1], [3], [6]

Male preponderance was demonstrated in keeping with findings in other reports. [1]-[3], [5], [6]

The most common diagnostic categories in our study were congenital anomalies, injuries and surgical infections in decreasing order, together accounting for 90.3% of pediatric surgical admissions, which is in keeping with most other reports in Nigeria and sub-Saharan Africa. [1]-[3], [5] The finding of congenital anomalies as the most common diagnostic category is similar to the findings in one report in Southern Nigeria; but differ from findings in other Southern parts of Nigeria and sub-Saharan Africa where trauma was found to be the most common.[1]-[3], [5] This may not be unconnected with the high rate of consanguinity in northern

Nigeria with consequent increase in congenital anomalies. [7], [8]

Injuries are the leading cause of childhood mortality and are second to acute infections as the cause of morbidity in developed countries, in recent years injuries are fast becoming an important cause of morbidity and mortality in sub-Saharan Africa. [1]-[3], [9], [10] In this report injuries closely followed congenital anomalies lending credence to the fact that there is a rising burden of injury as a cause of morbidity among African children.

Operative treatment was indicated in 57.6% of the patients. This is higher than the 52.7% reported in Ogun State Nigeria and lower than the 66.6% reported in Ondo State Nigeria. [2], [3]

The mean duration of admission in this study is similar to that reported in Benin Nigeria but is significantly lower than what was reported in Western Nigeria. [2]-[4]

The mortality rate in this report is significantly higher than the 0.8%, 5.3% and 7.46% reported in Ghana, Gambia and Ethiopia respectively. [1], [6], [11] Our hospital lacks a dedicated pediatric surgical ward, intensive care unit as well as trained pediatric surgical nurses. The lack of a dedicated pediatric surgical ward meant that all of the patients were admitted to other wards within the hospital and this may have influenced the high mortality. The Ghanaian report which had a significantly lower mortality rate may have been so, because only elective cases were considered in their study. [11] Whereas this study considered both elective and emergency cases.

The large pediatric surgical workload coupled with a low work force and lack of adequate pediatric surgical facilities has been associated with poorer outcomes in other studies. [2], [4], [12], [13] This picture as seen in developing countries defers with reports emanating from developed countries where there is a balance between pediatric surgical admissions and available resources. [14], [15]

The LAMA (Left against medical advice) rate in this report is 4.2% which is significantly lower than previously reported. [2]

5. Conclusion

This report shows that wide spectrums of pediatric surgical conditions are seen in Northern Nigeria with congenital anomalies being the most common. Most of the patients were treated and discharged.

These data can be used to set priorities for improving pediatric surgical care.

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