

Introduction

Although the provision of neurosurgical care in Sub-Saharan Africa has improved significantly in the past few decades, there remains significant deficiencies with regards to accessibility of care, resulting in serious and irreversible consequences for patients. The consequences of delay in care pose a significant pressure on patients, along with a large burden of cost to the public healthcare system. In the current study, we have sought to identify and quantify the sources of delay to neurosurgical care at Kijabe Hospital (KH) in Kijabe, Kenya. If sources of delay can be identified, appropriate targeted interventions can be implemented.

Methods

A mixed-methods, cross-sectional analysis of all patients admitted to the neurosurgical department at Kijabe Hospital (KH) was conducted: a retrospective analysis of admissions from October 1 to December 31, 2013 and a prospective analysis of admissions from June 2 to June 20, 2014. Demographic information, details with regard to presenting pathology, and management timing and strategy were recorded. IBM SPSS version 22.0 (SPSS, Chicago, IL) was used to conduct all statistical analyses.

Results

A total of 332 admissions were reviewed (237 retrospective, 95 prospective). The majority were pediatric admissions (median age: 3 months). Hydrocephalus (35%) and neural tube defects (27%) were the most common diagnoses. At least one source of delay was identified in 192 cases (58%); thirty-nine (12%) were affected by multiple sources. Delay attributable to primary care providers (PCPs), in isolation or combined with other sources, comprised 137 of all delayed cases (71%); misdiagnosis or incorrect management comprised 46 (34%) of these cases. Financial constraints contributed to delays in 25

Table 1: Demographic summary of admissions to Kijabe Hospital

	Retrospective (N=237)	Prospective (N=95)
Age (Months) - Mean, Median (range)	28.6, 3.0 (1 day to 56 years)	27.0, 2.8 (1 day to 39 years)
Gender, Male (%)	108 (46%)	49 (52%)
Kilometers travelled-Mean, Median (range)	271.4, 171 (25 to 2313)	252.3, 200 (57.5 to 867)
Time needed for transportation (Hours)-Mean, Median (range)	N/A*	9.5, 6 (1.5 to 120)
Operative admissions, N (%)	223 (94%)	91 (97%)
Emergency admissions, N (%)	223 (94%)	86 (92%)

* Accurate assessment of time of travel could not be obtained from retrospective component of study

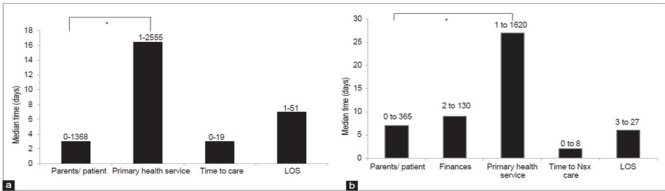


Figure 1. The median time (days) experienced by patients from symptom onset to disposition as obtained from the retrospective (a) and prospective (b) components of the study

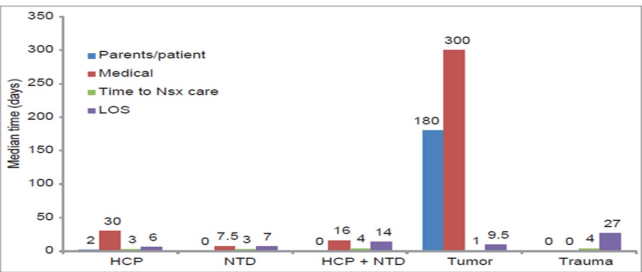


Figure 2. The median time (days) experienced by patients at various stages of their care, based on pathology. For this analysis, data from the retrospective and prospective arms of the study were combined.

Table 2. The incidence of various sources of delay affecting care of patients admitted to Kijabe Hospital

Source	Number of admission affected by source (Retrospective)	Number of admission affected by source (Prospective)
Parent/patient	46 (37%)	11 (16%)
Financial	N/A*	25 (36%)
Primary care providers	91 (74%)	46 (67%)
Neurosurgical team	5 (4%)	2 (3%)
Multiple	21 (17%)	18 (26%)
Any delay^	123	69

Note: Percentages in this table reflect the proportion of cases in a given cohort affected by the particular source of delay; given the possibility of multiple overlapping sources of delay in any individual case, these values are not additive.

* Accurate assessment of financial constraints could not be accurately obtained from the retrospective cohort

^ Total number of cases affected by at least 1 source of delay in a given cohort

Conclusions

A substantial proportion of patients experienced delays in procuring pediatric neurosurgical care. Improvement in primary care physician knowledge base, implementation of a triage and referral process, and development of community-based funding strategies can potentially reduce these delays.

References

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