

Thirty-day Readmissions after Pediatric Urologic Surgery

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Abstract

Introduction and Objectives. Readmission rates might be a valuable tool for the quality assessment of healthcare providers and systems. Lowering readmission rates could lead to better care and reduced costs. The purpose of this study was to establish the cause of readmission and means to prevent it.

Materials and Methods. We performed a retrospective study including all children undergoing urologic surgery procedures with readmissions within 30 days of surgery. Patient demographics, type of surgery, and reason for readmission were assessed.

Results. One thousand four hundred and eighty-five pediatric urologic surgeries were performed at our institution in 2015, with 29 documented unplanned readmissions (1.95%) and an additional 28 planned readmissions for follow-up procedures (1.88%). Mean time from discharge to return for the unplanned readmissions was 11.4 ± 8.1 days (range: 2 – 29 days). Readmissions were classified by chief complaint, including infection (13), urinary problems (8), pain (5), and volume status (3). Hypospadias repair, endoscopic procedures, and vesicoureteral reflux repair led to the majority of readmissions, accounting for 31%, 24.1% and 20.6% of readmissions, respectively. Seventeen readmissions required a secondary operation (29.8%), with an overall reoperation rate of 1.1%.

Conclusions. While the rates of unplanned readmission in our centre are too low to allow the description of their cause and thus the measurement of care quality, we believe that studying these rates is an important preamble to understanding patient care.

Key-words: readmissions, pediatric surgery, pediatric urology

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Introduction and Objectives

Readmissions rates might be a valuable tool for the quality assessment of healthcare providers and systems. Lowering readmission rates could lead to better care and reduced costs. The purpose of this study was to establish the cause of readmission and means to prevent it.

Materials and Methods

We performed a retrospective study including all children undergoing urologic surgery procedures with readmissions within 30 days of surgery. Patient demographics, type of surgery, and reason for return were assessed. The type of follow-up procedure for planned returns and unplanned secondary procedure were also observed. All analyses were performed using SPSS, v 23 (SPSS, Chicago, IL).

Results

One thousand four hundred and eighty-five pediatric urologic surgeries were performed at our institution in 2015, with 29 documented unplanned readmissions (1.95%) and an additional 28 planned readmissions for follow-up procedures (1.88%). Twenty two boys and seven girls with a mean age of 4.03 ± 4 years comprised the cohort that had unplanned readmissions. Mean time from discharge to return for the unplanned readmissions was 11.4 ± 8.1 days (range: 2 – 29 days).

Returning patients were classified by chief complaint: infection, including children returning with fever, positive blood/urine cultures, or incisional erythema; urinary problems (interrupted urine stream or dysuria); volemia status, consisting of readmissions secondary to nausea, vomiting, low urine output, or dehydration; and pain. In our group, the majority of readmissions were due to infection ($n=13$) and urinary problems ($n=8$) (see Figure 1).

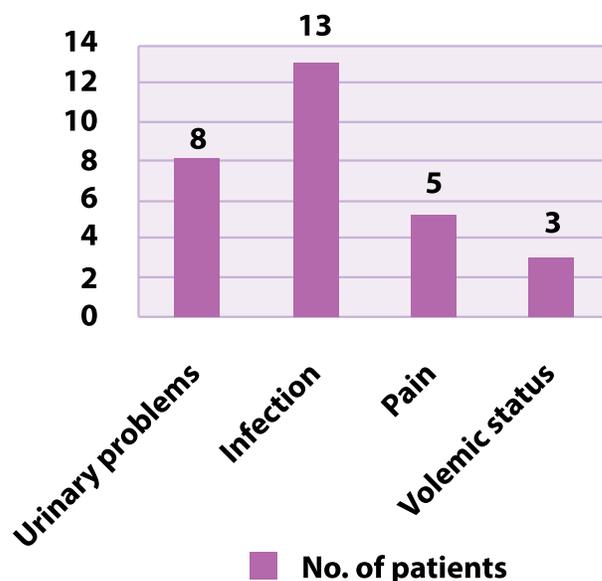
Unplanned readmissions were also classified according to surgical procedure performed (see Table 1).

Table 1. Unplanned readmissions by surgical procedure performed

Surgery	No. of patients
Circumcision/phalloplasty	0
Hypospadias	9
Orchidopexy/inguinal hernia/hydrocele	2
Endoscopic cases (including urolithiasis)	7

Pyeloplasty	3
Closure of bladder exstrophy	0
Nephrectomy	0
Vesicoureteral reflux (non-endoscopic management)	6
Other (varicocele, management of acute scrotum & nephrostomy)	2
Total	1485
Total	29

Figure 1 - Readmissions by chief complaint at presentation



Hypospadias repair, endoscopic procedures, and vesicoureteral reflux repair led to the majority of returns, accounting for 31%, 24.1% and 20.6% of readmissions, respectively. Infection was the cause for readmitting four patients that had vesicoureteral reflux repair surgery, three patients with hypospadias repair, three patients with endoscopic procedures, two that had pyeloplasty performed and one that had a nephrostomy. In the group of patients readmitted for urinary problems the majority, four of them, were operated for hypospadias, followed by two cases that had endoscopic procedures, one that had vesicoureteral reflux repair and one that had a nephrostomy.

Nine patients (31.1%) required an unplanned secondary procedure. This procedure consisted of exploratory cystoscopy for four patients, two of them presenting with urinary problems after hypospadias

repair, and the other two after pyeloplasty. Two patients had a mal-positioned ureteral stent that required stent replacement under general anesthesia. One patient had a Snodgrass procedure performed for a grade III hypospadias that developed urethral stricture with no passage of urine. The patient returned after 12 days, and a cystotomy was performed with favourable post-operative results. The last patient from the reoperated group developed an incisional abscess after pielloplasty procedure. There were no complete redo surgeries in our group.

In the group of patients that were readmitted for follow-up procedures, 18 (64.2%) were boys and 10 were girls, with a mean age of 3.76 ± 4.31 years. Most patients with planned readmissions (25%) had been operated on for vesicoureteral reflux repair. In this group there were eight (28.5%) follow-up procedures, most of them consisting of urethral stent removal. Seventeen readmissions (29.8%), both planned and unplanned, required a secondary operation, with an overall reoperation rate of 1.1%.

Discussions

Thirty-day readmission rates have long been a standard quality of care measure as they are perceived to be representative of preventable complications, poor care, and unnecessary cost.¹ Although very useful, measuring thirty-day readmission rates can be challenging. This is due to the fact that only a small portion of these are truly preventable, and much of what drives them are patient- and community-level factors that are well outside the hospital's control.² Regarding preventability, a recent systematic study reported that on average, just 27 % of readmissions were preventable.³

Our study has several limitations aside from its retrospective nature. It was conducted in a single tertiary pediatric healthcare center, although the biggest pediatric center in Romania, the fact that some patients may have been seen in other emergency departments or readmitted to community hospitals should be tak-

en into consideration. Also, our study included all patient readmissions, including some whose return might have had no relation to their primary surgery. Despite these limitations, this is one of the few existing studies with a focus on the pediatric population. Other studies documented the rates of readmissions for pediatric cardiothoracic surgery, as well as children undergoing appendectomy.^{4,5} With the body of literature addressing readmissions in the pediatric population lagging behind that of adults, studies like ours can spark a discussion focused on what happens to children after they leave the hospital.²

Conclusions

While the rates of unplanned readmission in our centre are too low to allow the description of their cause and thus the measurement of care quality, we believe that studying these rates is an important preamble to understanding patient care.

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