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Introduction

- Unused prescribed opioids may be a starting point for misuse by children and teenagers.
- In the context of the opioid crisis, a descriptive analysis of opioid prescriptions in four university teaching hospitals is relevant.
- Opioid prescribing habits at discharge following pediatric surgeries are not well described in Quebec.

Objective

- To describe opioid postsurgical discharge prescription characteristics.

Methods

- Retrospective analysis of opioid prescriptions:
 - Randomly selected from seven surgical specialties to a maximum of 5% for each type of surgery and a specific prescriber to obtain a global qualitative profile.
- Inclusion: Prescriptions written for patients
 - Under 18 years of age
 - Opioid-naïve
- Exclusion: Prescriptions written for patients
 - With opioid use within 30 to 7 days prior to surgery
 - With opioid use for chronic pain or addiction treatment
 - Who are discharged to another hospital or rehabilitation center
- Collection period: April 1st to October 31st, 2021.
- Descriptive statistics
- A thorough literature review was performed.

Results

PATIENT AND SURGICAL CHARACTERISTICS

- 505 prescriptions written by prescribers from seven surgical specialties.
- Most frequent surgeries: circumcision, orchidopexy, hypospadias repair, adenoidectomy, tonsillectomy, myringotomy, reduction of fracture, promenauris correction, mastoplasty, appendectomy and cholecystectomy.
- Ambulatory patients: 54% - Hospitalized patients: 46% - Median length of stay: 1 day (mean 2.4 days)

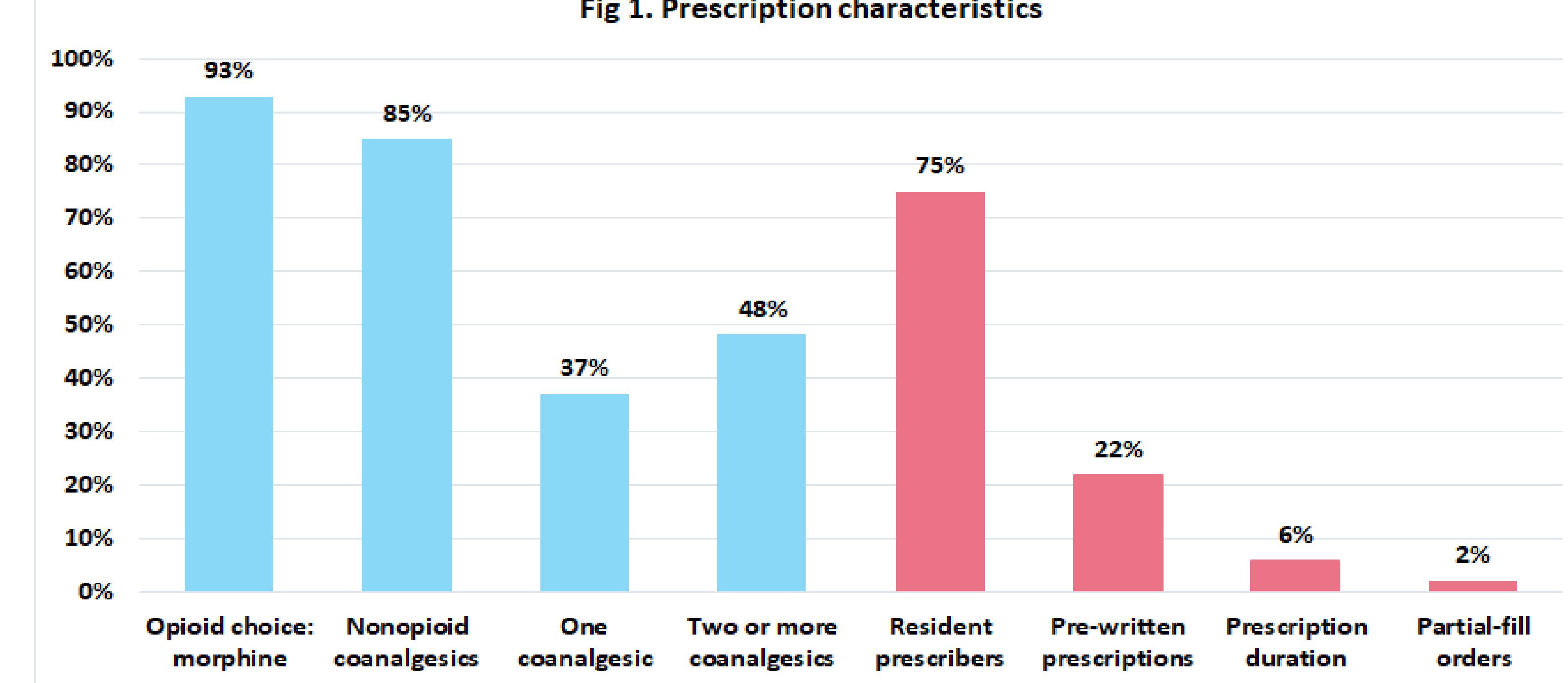
Table 1. Patient and surgical characteristics

Type of surgery	N = 505	Female (%)	Age Mean (SD)	Age Median (min.- max.)	Weight Mean (SD)	Weight Median (min.- max.)
Orthopedics	137	46	10.1 (4.7)	10.2 (0.8 -19.3*)	40.0 (19.6)	37.0 (7.9 - 89.0)
Urology	123	6.5	6.8 (4.6)	5.7 (0.1-18.0*)	26.3 (15.1)	21.4 (4.4 - 72.7)
ENT	97	43.3	5.9 (4.2)	4.5 (0.1 - 17.5)	25.0 (21.6)	18.0 (3.5 - 176)
Plastics	76	48.7	9.4 (5.9)	8.4 (0.4 -18.1*)	39.2 (26.1)	30.0 (5.9 -109)
General	49	32.7	13.0 (4.6)	14.7 (1.4 -18.0*)	51.3 (22.8)	54.0 (12.8 - 108.6)
Neurology	16	43.8	11.1 (5.4)	12.2 (0.3 -16.9)	45.7 (27.4)	45.6 (6.1 - 103)
Gynecology	7	100	14.0 (3.0)	15.8 (9.1-16.9)	77.5 (17.9)	75.0 (57.0 - 102.3)

SD: standard deviation - ENT : Ear, nose and throat - * Four patients aged above 18 years old are included because they were followed and operated on by pediatric surgeons.

PRESCRIPTION CHARACTERISTICS

Fig 1. Prescription characteristics



- Acetaminophen alone, as a monotherapy, is the most commonly prescribed coanalgesic (97%). The most frequent combination of coanalgesics is acetaminophen and ibuprofen (98%).
- The use of coanalgesics occurs less often in urology (41%).
- Residents appear to use combined coanalgesics and pre-written prescriptions more often than staff physicians.
- Pre-written prescriptions are rarely used, except for ENT (67%).
- Duration and partial-fills are rarely prescribed. The majority of partial-fill prescriptions are written in orthopedics. The prescriptions include a quantity of at least 30 tablets and partial-fills of 15, 20 or 30 tablets.

- The number of hospitals with opioid prescriptions for frequent surgeries varies. The prevalence of some surgeries, surgical techniques used and multimodal and locoregional analgesia can explain these differences. For example:
 - Reduction of fractures and hypospadias repair: 4/4
 - Appendectomy, tonsillectomy and inguinal hernia repair: 2/4

Table 2. Quantities issued at discharge

	Hospitalized patients (N = 231)		Ambulatory patients (N = 274)	
	Mean (SD)	Median (min.- max.)	Mean (SD)	Median (min. - max.)
Dose (mg OME/kg/dose)	0.11 (0.05)	0.10 (0.03 - 0.33)	0.11 (0.04)	0.10 (0.01 - 0.29)
Maximal number of doses	16 (10.4)	15 (2 - 80)	10.6 (7.9)	10 (3 - 60)
Total dose (mg OME/kg)				
Age equal or above 12 years (N = 162)	1.9 (1.5)	1.5 (0.4 - 7.2)	1.2 (1.0)	0.9 (0.1 - 6.3)
Total dose (mg OME/kg)				
Age below 12 years (N = 343)	1.5 (1.1)	1.3 (0.2 - 8.7)	1.1 (0.8)	0.9 (0.2 - 6.3)
Number of doses prescribed	Equal or above 20 and below 30 doses	30 doses and more	Equal or above 20 and below 30 doses	30 doses and more
Proportion (%)	30.7	11.7	9.5	4.4

OME : Oral Morphine Equivalent

- Overall the quantities issued are globally adequate.
- Median dose prescribed is at the lower limit of the range of doses recommended; from 0.08 up to a limit of 0.3 mg OME/kg/dose as per experts, the upper end cutoff.
- The total dose (mg OME/kg) is globally higher in patients aged 12 years and over who required hospitalization, mainly in orthopedics.

Recommendations

- To develop and implement pre-written prescriptions for the most frequent surgeries to favor consistent practices. The content must include:
 - Partial-fill if the quantity of opioids issued exceeds 20 doses.
 - Duration in days detailed: Do not use after XX days.
 - Nonopioid analgesic options used as first-line agents. When combination is used, the sequence of administration is to be detailed.
 - Storage and disposal statement.
- To systematically apply a questionnaire for teenagers at the preoperative visit regarding risk factors for misuse.
- To plan and develop educational sessions for prescribers and other professionals involved in the patient trajectory following surgery. Sessions are to target surgical residents, should be regular and customized by surgical specialty.
- To create an educational session or an electronic document for patients and their families. Tools should address postoperative care, pain management and emphasize the use of opioids as a second line, the safe use of opioids before and after surgery, as well as storage and appropriate modalities of disposal.
- Where stewardship or Enhanced Recovery After Surgery (ERAS) programs are active, to discuss the results of this study in order to facilitate the implementation of these recommendations.