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Pattern of Prescribing NSAIDs Utilisation at Outpatient Pediatric Poly at Universitas Sumatera Utara Hospital

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Abstract

BACKGROUND: The wrong prescription pattern on NSAIDs also often results in side effects and drug interactions that cause serious and detrimental drug reactions. Drug use research is needed to describe the pattern of drug use, early signs of rational drug use, interventions to improve drug use, cycles of quality control, and continuous quality improvement.

AIM: This study aimed to determine the prescribing pattern of NSAIDs at outpatient Pediatric Poly at Universitas Sumatera Utara Hospital, Medan, Indonesia in 2017.

METHODS: This descriptive retrospective study was conducted from October to November 2016 with data from July and August 2017.

RESULT: The study showed, outpatient of pediatric poly at Universitas Sumatera Utara Hospital in Medan there were 45,000 prescriptions, and 62 (0.15%) prescriptions contained NSAIDs. The most frequently prescribed NSAIDs 53 (85.48%) of prescriptions for outpatient pediatric poly was paracetamol. The most use of NSAIDs was consumed by a female in the age group of 3 years-12 years was 35 (58.06%). The highest frequency of NSAIDs utilisation was 7 days with 25 prescriptions (40.32%). There were 17 (27.42%) prescriptions with inappropriate dose, and the most widely prescribed dosage form was syrup for 34 (54.83%) prescriptions. The most duration of treatment with NSAIDs drugs which is paracetamol reached up to seven-days 25 (40.32%). The most frequently prescribed drugs 57 (91.93%) were generic drugs.

CONCLUSION: It can be concluded that there are still inappropriate doses and frequency of NSAIDs utilisation.

Introduction

Analgesics or often referred to as painkillers are part of substances that can reduce or block pain without losing consciousness [1]. Nonsteroidal anti-inflammatory drugs (NSAIDs) are the most widely prescribed and commonly used for the treatment of pain, fever, and inflammatory processes. The National Disease and Therapeutic Index said that non-steroidal analgesic and anti-inflammatory drugs (NSAIDs) are the drugs most often prescribed by doctors around the world [2].

Although analgesic drugs are generally safe to use, if they are wrong in their use, symptoms of unwanted side effects can occur. It is better to know the kinds of pain that can be treated with analgesic drugs before choosing the right pain medication. This information should be provided by pharmacists to NSAIDs users [3].

The wrong prescription pattern on NSAIDs also often results in side effects and drug interactions that cause serious and detrimental drug reactions [3]. Drug use research is needed to describe the pattern of drug use, early signs of rational drug use, interventions to improve drug use, cycles of quality control, and continuous quality improvement. The pattern of drug use can illustrate the extent to which the drug is used at certain times and in certain areas for example countries, regions, communities, hospitals, the depiction becomes important when the drug is used as part of the evaluation [4]. Because of the high number of uses of NSAIDs at pediatrics that were prescribed by doctors, researchers conducted this study to know the use of NSAIDs at Pediatric Poly of Universitas Sumatera Utara Hospital in Medan.

Methods

This study was a retrospective which conducted in March-April 2018 in the outpatient Pediatric Poly at Universitas Sumatera Utara Hospital in Medan from January to December 2017. Inclusion criteria in this study were NSAIDs prescriptions with complete data about gender, age and body weight from pediatric outpatient.

The obtained data were presented in percentages and table forms. The obtained data processed and analysed using the Microsoft Excel program, then presented in table form based on gender, age, name and NSAIDs class, duration of use, dosage form, type of medication (generic or brand name) in the outpatient of Pediatric Poly at Universitas Sumatera Utara Hospital in Medan. The NSAIDs prescriptions doses were evaluated by comparing the doses according to “Specialite Drug Information” by Indonesian Pharmacist Association, “Drug Doses” by Frank Shann, and “Handbook of Pediatric Dose” by Association Indonesian Pediatric Physician.

Results

Based on the observation of the prescription sheets for Pediatric Poly taken from January 2017 until December 2017, there were 4,500 prescription sheets was obtained and 62 (0.15%) prescription sheets met the inclusion criteria.

Table 1: The usage of NSAIDs based on gender

No.	Gender	n (%)
1.	Male	33 (46.78)
2.	Female	29 (53.22)

The number of patients that use NSAIDs based on gender and ages can be seen in Table 1 and 2.

Table 2: The usage of NSAIDs based on age

No.	Age	n (%)
1.	0 - 1 month	0 (0)
2.	2 month - 2 years	16 (24.19)
3.	3 years - 12 years	35 (58.06)
4.	13 years - 17 years	11 (17.75)

Table 1 showed that the used number of NSAIDs based on gender was 33 (46.74%) for male and 29 (53.22%) for female.

Based on ages (Table 2), the used number of NSAIDs were 16 (24.19%) for 2 month-2 years old, 35 (58.06%) for 3-12 years old and 11 (17.75%) for 13-17 years old.

Table 3: The usage of NSAIDs based on NSAIDs names

Name of Drugs	n (%)
Sanmol	3 (4.83)
Aspilet	3 (4.83)
Paracetamol	53 (85.48)
Aspirin	2 (3.22)
Paracetamol Forte	1 (1.61)

The pattern of NSAIDs name and length of use of NSAIDs in outpatient pediatric poly at Universitas Sumatera Utara Hospital can be seen in Table 3 and 4 respectively.

Table 4: The usage of NSAIDs based on the duration of use

Duration	n (%)
1 day	1 (1.61)
2 days	3 (4.38)
3 days	17 (27.41)
4 days	3 (4.83)
5 days	7 (11.29)
6 days	1 (1.61)
7 days	25 (40.32)
8 days	0 (0)
9 days	0 (0)
10 days	2 (3.22)
14 days	2 (3.22)
23 days	0 (0)
Fever symptom	1 (1.61)

Various dosage forms of NSAIDs drugs have been made to provide convenience to patients in taking medication and also to maintain drug stability. The usage of NSAIDs based on dosage forms can be seen in Table 5.

Table 5: The usage of NSAIDs based on dosage forms

Dosage Forms	n (%)
Tablet	22 (35.48)
Syrup	34 (54.83)
Drop	3 (4.83)
Powder	3 (4.83)

Table 5 showed that the most widely used drug dosage forms were syrup as much as 34 (54.83%).

Table 6: The usage of NSAIDs based on the type of drug (generic and brand name)

Type of Drugs	n (%)
Generic drugs	57 (91.93)
Brand name drugs	5 (8.07)

The use of drugs both in generic or brand name is an option in a prescription, but the most important thing is the accuracy of the doses to get the optimum therapeutic effect. The pattern of NSAIDs use based on brand name and evaluation of doses can be seen on Table 6 and 7 respectively.

Discussion

Relieving pain is the most desired by patients, especially in children. NSAIDs are widely used in pediatric patients. NSAIDs are the most extensive prescription, especially in cases of inflammatory pain

due to their strong effects. But NSAIDs has side effects, especially in children. The side effects that can occur are damage to the gastrointestinal tract, heart, kidneys, while the vital organs in children are still under development [5].

Table 7: The evaluation of NSAIDs dose

Month	Match n (%)	Mismatch n (%)
Jan	5 (8.06)	1 (1.61)
Feb	4 (6.45)	2 (3.22)
Mar	5 (8.06)	1 (1.61)
Apr	4 (6.45)	0 (0)
May	4 (6.45)	0 (0)
Jun	4 (6.45)	0 (0)
Jul	4 (6.45)	2 (3.22)
Aug	2 (3.22)	0 (0)
Sep	5 (8.06)	3 (4.83)
Oct	5 (8.06)	3 (4.83)
Nov	2 (3.22)	5 (8.06)
Des	1 (1.61)	0 (0)
n (%)	45 (72.58)	17 (27.42)

NSAIDs effectively control the symptoms of many of the diseases although they have little effect on the underlying causes. Their effect is mainly on the mediators of the inflammatory process. Unfortunately, these mediators have important physiological roles in the maintenance of health, particularly in the gastrointestinal tract and the kidney, so that their inhibition results in many unwanted reactions of varying severity [6].

Based on the result, the number of male patients using NSAIDs was 29 (46.78%), and the number of female patients was 39 (53.22%) showed that the use of NSAIDs based on gender was not too different. This is the same as the research done by Soeroso (2007), which states that the use of NSAIDs is higher in female, as seen from the percentage of incidences of pain more often experienced by women.

Table 4 showed that the longest use of NSAIDs was prescribed for 7 days as many as 25 prescriptions. According to the guideline, the use of Mefenamic Acid by the guidelines stating that the use of Mefenamic Acid is not more than 1 week. Paracetamol should not be given more than 4 g per day because of the possibility of causing liver damage [7]. Of the 62 prescriptions for using sign an "If sick/necessary" as many as 1 prescription or as much as 1.61%, this is still very low while analgesic use does not need to be taken if the patient does not feel pain because the use of long-term NSAIDs can cause side effects. The most common side effects are stomach-intestinal disorders, blood damage, liver and kidney damage and also allergic skin reactions [8]. According to Table 4, there was the inappropriate frequency of using NSAIDs; Table 4 showed that there was some physician that prescribed NSAIDs more than 7 days and its use still needs to be considered again.

The syrup dosage form is mostly like by children because of the good taste. In general, the use of oral drugs is more widely used, because oral drug use is the most enjoyable, easy and safe use [9]. The use in syrup and drop preparations is used in paracetamol, which is used in infants and young children.

As indicated in Table 6, the majority of prescription drugs are generic drugs of 57 (91.93%) prescriptions and brand name drugs of 5 prescriptions (8.07%). Based on these data the use of generic drugs was higher than brand name drugs. This finding indicated that the Indonesian Health Policy of using generic drugs had been well implemented. The government has committed to making healthcare affordable as stated in the National Health Policy. Generic drugs typically cost 30% to 60% less than the brand name drugs, and widespread use of generics has the potential to reduce the price of other brand name drugs by creating more competition. Generic medicines are as effective as brand name medicines [10].

Based on Table 7, overall there were 17 (27.42%) of NSAIDs doses were inappropriate which is less than the therapeutic range (underdose) or administrated over than therapeutic range (overdose). The NSAIDs prescriptions doses were evaluated by comparing the doses according to “Specialite Drug Information” by Indonesian Pharmacist Association, “Drug Doses” by Frank Shann, and “Handbook of Pediatric Dose” by Association Indonesian Pediatric Physician. The accuracy of the dose is a very important factor. If the dose is administrated less than the therapeutic range (underdose), there will be a therapeutical failure, but if administrated over than the therapeutic range (overdose) there will be symptoms such as nausea, vomiting, diarrhoea, and anaphylactic shock. It can be concluded that there was inappropriate drug use in terms of dose and frequency of use in NSAIDs utilisation.

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