Research article

# Knowledge, attitudes and practices of doctors at the Ignace Deen University Hospital Center in Conakry (Guinea) on nonsteroidal anti-inflammatory drugs

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## Abstract

**Objective:** To assess the knowledge, attitudes and practices of doctors at the Ignace Deen University Hospital of Conakry (Guinea) on Nonsteroidal Anti-Inflammatory Drugs (NSAIDs).

**Methods:** This was a descriptive cross-sectional study carried out in the various departments of the CHU Ignace Deen between September 2021 and September 2022. We used simple or multiple-choice questionnaires concerning knowledge, attitudes, and practices.

**Results:** During the period of our study, the number of participants were 180 doctors from different departments. The mean age was 33.5 ± 5.1 years with the extremes of 25 and 57 years. There was a male predominance in 88% of cases with a M/F sex ratio of 7.4 GPs which the most represented status in 53% of cases. The most prescribed NSAIDs were propionics (82.8%) and phenylacetic acids (76.7%) with an average treatment duration of seven days. UGD was the most common adverse effect in 82.8% of the cases. In our study we observed the association of two NSAIDs in 66.1% of the cases.

**Conclusion:** Among the doctors, 70.6% had good knowledge, 53.8% good attitudes and 57.7% bad practices. Doctors had good knowledge and good attitudes about NSAIDs, but practices still need to be improved, especially among general practitioners.

**Key words:** NSAIDs, Knowledge, Attitude, Practice, Doctors, Guinea

## Introduction

Nonsteroidal Anti-Inflammatory Drugs (NSAIDs) are symptomatic drugs capable of inhibiting the inflammatory process or relieving its symptoms, especially pain, fever[1]. They are among the most commonly prescribed drugs in the world for their anti-inflammatory effects; analgesics; antipyretics; antiaggregants[2,3]. They are structurally and pharmacologically distinct from glucocorticoids and have a common mechanism of action: inhibition of cyclooxygenase (COX)[1,4].

The frequency of their prescription is explained by their effectiveness in many indications such as the treatment of pain and inflammation in all specialties, particularly in general medicine, rheumatology, surgery and traumatology[5]. The use of NSAIDs exposes patients to many risks[4]. The Food and Drugs Administration (FDA) has classified them among the most common causes of adverse effects including gastrointestinal bleeding[4,6]. The therapeutic benefits are counterbalanced by an increased risk of incidents and accidents, particularly digestive, renal and cardiovascular[7,8]. They are responsible variable side effects, intestinal, cutaneous, and are the cause of about 10% of cases of drug-induced liver damage, they can also induce kidney and heart failure[9,10].

## Materials and methods

*Type of study*: This was a descriptive cross-sectional study.

*Setting:* The study took place at the Ignace Deen University Hospital between September 2021 and September 2022 and involved the Departments of; Rheumatology; Medical and surgical emergencies; Neurology; General surgery; Otolaryngology; Gyneco-obstetrics and Traumatology and Orthopaedics.

### Participants

*Inclusion criteria:* The study included all the physicians of the above-mentioned services who were present during the period of the survey and who agreed to participate in the study.

*Exclusion criteria***:** Those not included in our study were; radiologists, laboratory technicians, medical students and postgraduates, physicians who refused to participate in the survey.

*Variables***:** We used simple or multiple-choice questionnaires concerning knowledge, attitudes and practices.

For each physician, the following data was collected:

*Demographics:* Age, gender, specialty, tenure, department.

*Knowledge*: Participants answered the following questionnaires:

- What are NSAIDs?

  The participant who chose one of the following answers:

  *Right answer*: NSAIDs are drugs capable of fighting against the mechanisms of inflammation by inhibiting: Arachidonic acid; Cyclo-oxygenase; Prostaglandin.

  *Acceptable Answer*: An NSAID is a medicine used for: Inflammation; Pain; Fever

  *Wrong answer*: Other definitions
- What are the functions of NSAIDs?

  *Correct answer*: The participant who chose one of the following answers: Anti-inflammatories; Antipyretics; Analgesics; Anti-platelet agents.

  *Wrong answer*: The participant who gave other or no answer
- What are the existing dosage forms of NSAIDs?

  Were asked to tick the galenic form(s) of the NSAIDs.

  *Correct answer*: The participant who chose one of the following answers:

  Tablets, injectable forms, capsules, ointments, eye drops, sprays, suppository syrups.

  Wrong answer: the participant who gave other or no answer.
- What are the indications for NSAIDs?

  Participants were asked to name at least one of the indications for NSAIDs.
- What are the contraindications?

  Each participant was asked to name at least one of the NSAID contraindications.
- Attitudes: To assess this parameter, we asked the following questions
- How often do you prescribe NSAIDs?
  - less than 5 times a day
  - between 5 – 10 times a day
  - more than 10 times a day
- For how long do you prescribe NSAIDs?
  - short (2 – 3 days)
  - average (4 – 7 days)
  - long (> 7 days)
- When prescribing NSAIDs, do you take contraindications into account? It was a question of knowing if the recommendations concerning the contraindications of NSAIDs are respected by the participants during the prescription.
- What are the different classes of NSAIDs that you prescribe? It involved knowing the different classes of NSAIDs prescribed among the following classes: salicylates, propionics, phenylacetic acids, anti-COX2, oxicams, indolics, pyrazoles, fenamates.
- Do you prescribe two NSAIDs together? The question was whether NSAIDs are co-prescribed by physicians.
- *Practices*: To assess the practices of physicians we asked the following questions:
  - Do you prescribe NSAIDs in combination with other medications? This was to determine whether participants prescribed NSAIDs in combination with other groups of drugs such as: Analgesics; AVK; Diuretics; Antacids; Antidepressants; Antibiotics; Antihypertensives; Others; None
- What immediate side effects have you observed after prescribing an NSAID? Participants were asked to tick the adverse effects observed in the short term after prescription of an NSAID in a patient.
- What late complications have you observed after prolonged use of NSAIDs in a patient? We asked each participant to tick the possible complications observed in current practice after prolonged use of NSAIDs in a patient.
- What is your conduct in the event of the appearance of side effects? It was a question of knowing the behavior held by the doctors at the time of the occurrence of side effects.
- After the prescription of an NSAID, do you systematically give a gastroprotector to prevent the occurrence of peptic ulcer?
- After the prescription of an NSAID, do you give monitoring measures?

*Data source:* We carried out our survey with the help of a pre-established individual survey form containing various questions.

*Bias:* The survey was conducted in a single university hospital in Conakry, due to the refusal of some doctors.

*Size of the study:* Our sample was determined on the basis of the number of physicians (n = 180) who participated in our study compared to the total number of physicians practicing in the various departments concerned.

*Statistical methods:* Our data were entered and analyzed using Epi info software (version 7.2). A descriptive analysis was done by calculating:

- For quantitative variables, means and standard deviation.
- For the categorical variables, the number of participants and the frequencies.

*Ethical considerations*: Before undertaking any fieldwork, the agreement of the management of the Ignace Deen University Hospital with a letter to each department head was obtained. In the field, verbal informed consent was obtained from the participants before submitting them to the questionnaires and in strict respect of confidentiality and anonymity.

## Results

*Participants:* A total of 180 doctors responded to our questionnaires out of 461 who were approached (39%), 95 general practitioners, 85 specialists with a clear male predominance (n=158) (Table 1).

*Descriptive data:* The mean age was 33.5 ± 5.1 years (extremes of 25 and 57 years), the length of medical practice was between 1 and 5 years in 116 cases (64,4%) (Table 1). Most participating physicians were GPs in 95 cases (53%) (Table 1).

**Table 1**: Socio-demographic data of study participants recruited in the different departments of the Ignace Deen University Hospital (Conakry) between September 2021 and September 2022 (n=180)

| | | Workforce | (%) |
|---|---|---|---|
| Middle age | 25 - 35 | 125 | 69.4 |
| Average exercise time | 1 - 5 | 116 | 64.4 |
| Sex | Male | 158 | 88 |
| | Generalists | 95 | 53 |
| Specialty | Specialists | 85 | 47 |

## Main results

*Knowledge:* When asked what is an NSAID, participants gave correct answers in 104 (58%) cases, acceptable answers in 55 (30%) cases and wrong answers in 21 (12%) cases. To the question, what are the indications for NSAIDs, the participants reported the following answers: pain of all aetiologies 132 (73.3%), inflammatory rheumatism 113 (62.7%) and inflammation 95 (52.7%) (Figure 1). For the question what are the contraindications of NSAIDs, the responses reported were dominated by peptic ulcer disease 164 (91.1%), gastritis 152 (84.4%), pregnancy 148 (82.2%), the elderly 119 (66.1%), hypersensitivity to an NSAID 102 (56.6%) (Figure 2). Thus, the overall rate of responses on knowledge was correct in 130 (72.2 % cases).

**Figure 1:** Data on NSAID indications reported by study participants between September 2021 and September 2022 (n=180)

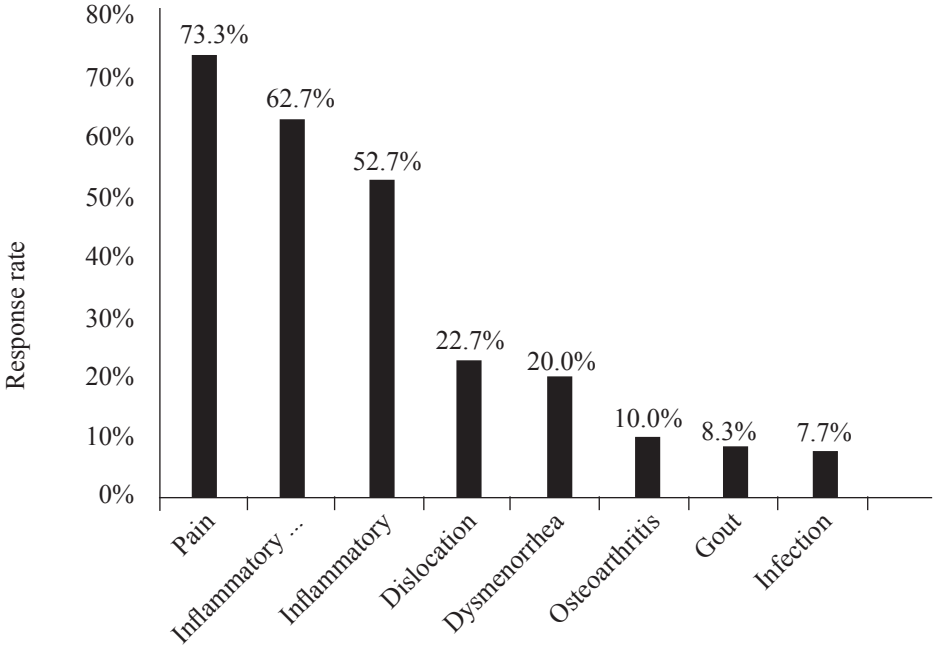
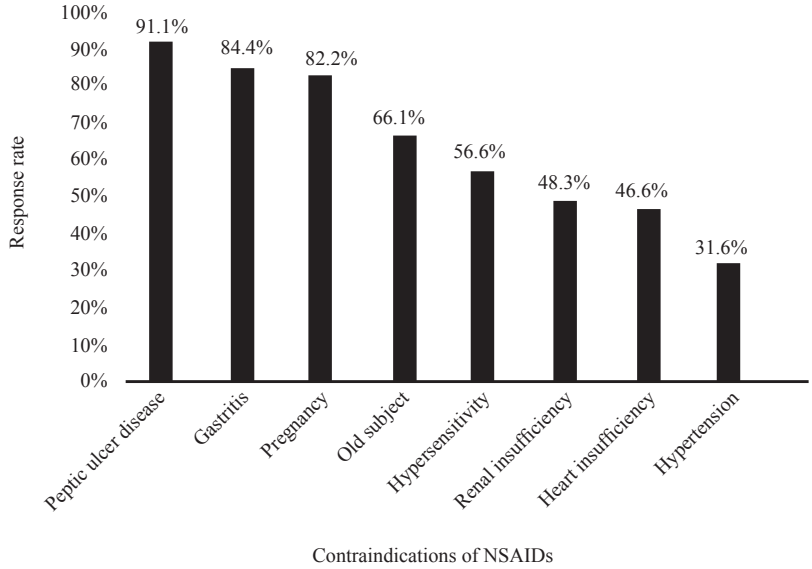


**Figure 2:** Data on NSAID contraindications reported by study participants between September 2021 and September 2022 (n=180)




*Attitudes:* The frequency of NSAID prescriptions and the duration of their prescription are reported in Figures 3 and 4. The contraindications before prescription of NSAIDs were observed in 167 (92.8%) cases and the classes of NSAIDs most often prescribed were dominated by propionics in 149 (82.8%) cases; phenylacetic acids in 138 (76.7%) cases (Table 2). There was a significant number of doctors who prescribed two NSAIDs together, in 119 (66.1%) cases.

**Figure 3:** NSAID prescribing frequency data reported by study participants between September 2021 and September 2022 (n=180)

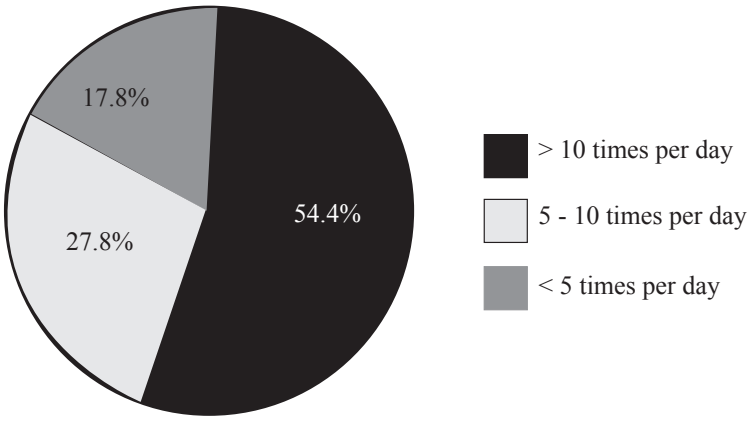



**Figure 4:** NSAID prescription duration data reported by study participants between September 2021 and September 2022 (n=180)

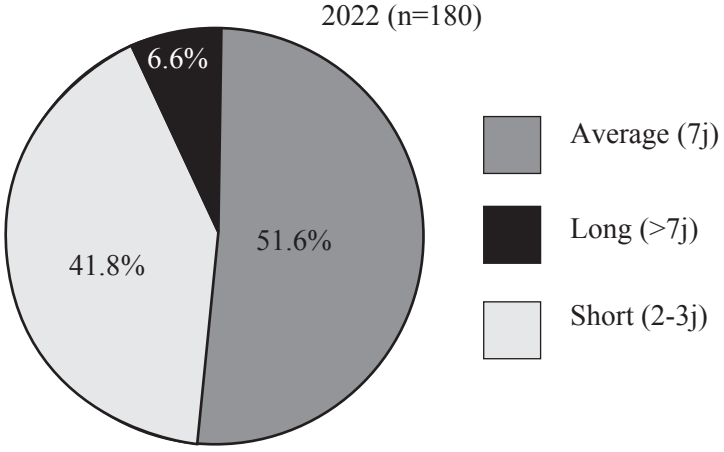


**Table 2:** Data on different classes of NSAIDs reported by study participants between September 2021 and September 2022 (n=180)

| | No. | (%) |
|---|---|---|
| Propionics | 149 | 82.8 |
| Phenylacetic acids | 138 | 76.7 |
| Salicylates | 101 | 56.1 |
| Anticox 2 | 60 | 33.3 |
| Oxycam | 50 | 27.8 |
| Do not light | 25 | 13.9 |
| Fanamates | 22 | 12.2 |
| Pyrazoles | 14 | 7.8 |

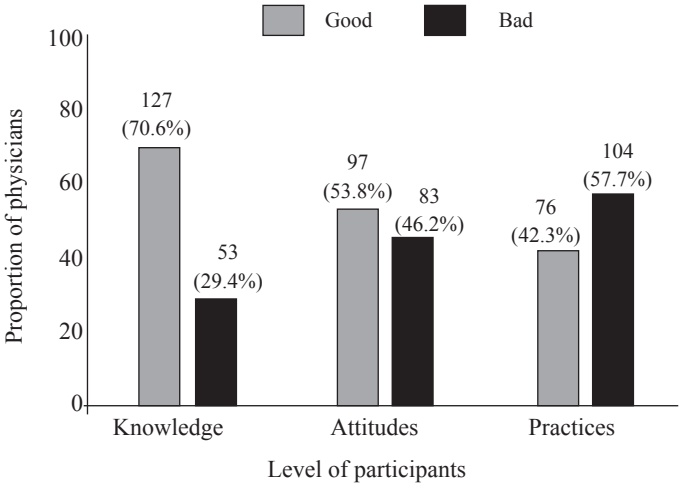
*Practice:* NSAIDs were associated with VKAs in 103 (57.2%) cases; analgesics in 88 (48.9%) cases and PPIs in 79 (43.9%) cases. Among the doctors, 108 (60%) systematically prescribed a gastro-protector in combination with NSAIDs and mainly omeprazole in 148 (82.2%) cases. Epigastralgia was the most immediate side effect observed by doctors in 158 (87.8%) cases followed by gastroesophageal reflux in 84 (46.7%) cases and nausea in 77 (42.8%) cases (Table 3). More than half of the physicians stated that they had already observed late complications linked to NSAIDs in their current practice, mainly of the type of digestive disorders: peptic ulcer in 113 (62.7%) cases followed by gastrointestinal bleeding in 81 (45%) cases and perforations in 76 (42.2%) cases. In the event of the appearance of side effects, the main course of action was continuation of the treatment in 103 (57.2%) cases.

**Table 3**: Immediate NSAID side effect data reported by study participants between September 2021 and September 2022 (n=180)

| | No. | (%) |
|---|---|---|
| Epigastralgia | 158 | 87.8 |
| GERD | 84 | 46.7 |
| Nausea | 77 | 42.8 |
| Ulcerations | 56 | 31.1 |
| Rashes | 48 | 26.7 |
| Dyspepsia | 41 | 22.8 |
| Dizziness | 35 | 19.4 |
| Vomiting | 34 | 18.9 |
| IRA | 30 | 16.7 |
| Quincke's edema | 28 | 15.6 |
| Urticaria | 26 | 14.4 |
| Abdominal pain | 20 | 11.1 |
| Headache | 16 | 8.9 |
| Diarrhea | 14 | 7.8 |
| Low sodium retention | 11 | 6.1 |
| Tinnitus | 10 | 5.6 |
| Lyell's syndrome | 9 | 5.0 |
| Sleeping troubles | 8 | 4.4 |
| Vision disorders | 5 | 2.8 |
| Hyperkalemia | 3 | 1.7 |
| Acute anemia | 2 | 1.1 |
| Nonspecific colitis | 0 | 0 |

Only 98 (54.4%) physicians instituted monitoring measures once NSAIDs were prescribed and these measures were mainly biological assessments in 136 (75.5%) cases and clinical assessments in 97 (53.8%) cases. Overall, participants in our study had 70.6% good knowledge, 53.8% good attitudes, and 57.7% bad practices (Figure 5).

**Figure 5:** Data on knowledge, attitudes, and practices of study participants between September 2021 and September 2022 (n=180)



## Discussion

This was a descriptive cross-sectional study with the aim of evaluating the knowledge, attitudes and practices of doctors at the Ignace Deen University Hospital on Non-Steroidal Anti-Inflammatory Drugs (NSAIDs).

In this study, the participation rate was 39%. In 2020, Majjad *et al*[11] in Morocco had reported a participation rate of 25.6%. Despite this low participation rate in this study, it seems to be high compared to other African studies and this could be explained by the unavailability, the refusal of some doctors to assess their knowledge in an African context. In addition, this survey on the knowledge, attitudes and practices of NSAIDs represents the first study of its kind in Guinea, which may also partially explain the relatively low rate of participating physicians. In agreement with data from the literature, we report a male predominance (88%)[5,10,12]. In our study, general practitioners predominated in 53% of cases. In 2020, Majjad *et al*[11] in Morocco found 39.4% GPs in their study. This result could be explained by the high number of general practitioners in our health structures.

## Generalisability

*Knowledge:* The indications most reported by the participants were pain, inflammatory rheumatism and inflammation. In a 2016 Canadian study, inflammation was the most common indication (31.8%), followed by minor musculoskeletal trauma (20.5%) and arthritis (19.5%)[12]. The contraindications most reported by the participants in our study were mainly peptic ulcer, gastritis and pregnancy. In 2016, Green *et al*[12] reported the following contraindications: ulcers (17.9%), gastrointestinal disorders (12.2%), kidney disorders (9.5%), coagulation (9.5%) and cardiovascular diseases (9.2%)**.** Thus, in agreement with the data of the literature, our results show that the participants know the recommendations in terms of indications and contraindications of NSAIDs. The overall rate of knowledge correct responses was 70.6% and higher than Majjad and Majjad *et al*[11] *(25,5 %* which had reported a rate of 56.3%. This difference could be explained by our participation rate which was relatively high compared to that of Majjad *et al*[11].

*Attitudes:* Our survey showed that the majority of doctors prescribed nonsteroidal anti-inflammatory drugs more than 10 times a day and for an average duration of 7 days. Our observations are comparable to those of Sehbani *et al*[5] in Morocco where the majority of doctors prescribed nonsteroidal anti-inflammatory drugs, about 5 times a day (63.2%) and for a duration of 7 days (73%). Indeed, the high frequency of prescription of NSAIDs in our study could be explained by their effectiveness in the symptomatic management (pain, fever) of several pathologies whatever their specialty, which makes them the group first-line treatment of practitioners[13,14]**.** Propionic derivatives and phenylacetic acids were the classes of NSAIDs most often prescribed by participants in our study. In 2014, Diomande *et al*[1] in Côte d'Ivoire reported a predominance of propionic derivatives and phenylacetic acids in respectively 80.6% and 24.9% of cases. This similarity could be explained by the accessibility and low cost of these classes of NSAIDs which are sold without any medical prescription in our African context. Of the physicians, 119 prescribed two NSAIDs together. According to the rules for the proper use of NSAIDs and the guidelines issued by the various learned societies, the combination of two NSAIDs, including aspirin at an anti-inflammatory dose, is strictly contraindicated[13-15]. Thus, this practice of doctors is not to be encouraged.

*Practices:* In their daily practices, the most immediate side effects encountered by our respondents were dominated by digestive manifestations such as epigastralgia, GERD and nausea. This finding is in agreement with data from the literature. In fact, in the Moroccan study by Sehbani *et al*[5], the digestive manifestations were dominated by epigastralgia. As for late side effects, peptic ulcers and their complications in gastrointestinal bleeding followed by perforations were the most reported by the participants. These adverse effects can be superimposed on data from the literature and could be explained by the inhibition of prostaglandin synthesis induced by nonsteroidal anti-inflammatory drugs[16-18]. The participants prescribed adjuvant treatment in combination with NSAIDs and mainly VKAs. This practice is contrary to data in the literature[16]. In fact, AVK anticoagulants increase the digestive risk of NSAIDs through a double interaction: by increasing the free function of the AVK and by worsening the prognosis of haemorrhagic accidents induced by NSAIDs[9]. Similarly, more than half of the participants responded to continue the treatment in the event of the appearance of side effects. According to the rules for prescribing NSAIDs issued by the ANSM, it is recommended that treatment be systematically discontinued and that monitoring be implemented in the event of the appearance of side effects[16]. Thus, these practices of doctors are not to be encouraged. With respect to monitoring, physicians reported systematically implementing monitoring measures once they prescribe nonsteroidal anti-inflammatory drugs which were particularly biological and clinical assessments with the aim of preventing the occurrence of digestive, renal and cardiovascular adverse effects. This practice is in accordance with the recommendations of the National Agency for the Safety of Medicines and Health Products ( ANSM) which stipulate that the monitoring of NSAID treatments must be carried out by monitoring digestive and cardiovascular adverse effects, being attentive to possible skin and infectious manifestations[16].

Overall, the physicians surveyed had better knowledge of some aspects of prescribing NSAIDs (good knowledge 70.6%; good attitudes 53.8%). Nevertheless, our work has highlighted certain discrepancies between daily practice and the reference systems (bad practices

57.7%) hence the interest of a continuing education program on this subject.

### Limitations of the study

During the study period, we were confronted with the following limitations and difficulties: a low participation rate, the unavailability of some physicians for various reasons and in particular specialists, the refusal without reason of some physicians and some services to participate in the study, the survey was carried out in a single university hospital.

### Conclusion

Nonsteroidal anti-inflammatory drugs are one of the most widely used therapeutic classes in the world, whether in the context of medical prescription or self-medication.

Many iatrogenic complications could be avoided if the recommendations concerning their use were better respected. Our study has shown that training and awareness-raising actions are necessary for better application of international recommendations concerning NSAIDs.

*Declaration of interest:* The authors declare that they have no conflict of interest.

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