

Research Article

A comparative survey study on current prescribing trends in non-steroidal anti-inflammatory drugs among practitioners in private set up and tertiary care teaching rural hospital

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Received: 13 October 2014

Accepted: 26 October 2014

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ABSTRACT

Background: The study was conducted to compare the current prescribing trends of Non-Steroidal Anti-inflammatory drugs (NSAIDs) among private practitioners and practitioners at tertiary care teaching rural hospital.

Methods: The prospective survey study was carried out by obtaining response to feedback questionnaire related to use of NSAIDs from 25 private & 25 tertiary care practitioners.

Results: NSAIDs use was routine amongst private (66%) and tertiary care (77.6%) practitioners. Preferences of tertiary care practitioners were paracetamol (36%), diclofenac (20%), aceclofenac (20%), ibuprofen (20%) and etoricoxib (4%) while that of private practitioners were ibuprofen (40%), paracetamol (32%), diclofenac (16%) and aceclofenac (12%). Use of Fixed Dose Combinations (FDC) was 72% in private and 68% in tertiary care practitioners. While prescribing FDCs, private practitioners preferred NSAIDs + NSAIDs (100%) over NSAIDs + muscle relaxants (44.44%), NSAIDs + Serratiopeptidase (55.56%), and NSAIDs + antacids (44.44%) similarly tertiary care practitioners also preferred NSAIDs + NSAIDs (100%) over NSAIDs + muscle relaxants (47.06%), NSAIDs + Serratiopeptidase (36%), and NSAIDs + antacids (28%). Of the NSAIDs + NSAIDs combination ibuprofen + paracetamol (70%) was preferred by private practitioners and diclofenac + paracetamol (61%) by tertiary practitioners. Paracetamol was safely used during pregnancy by both groups. Adverse effects observed included gastritis (98%), urticaria (32%), and anaphylaxis (2%), although no fatality was observed.

Conclusion: Not much of a difference was observed in prescribing habits of both groups. Though beneficial and routinely prescribed, NSAIDs with equal risk potential were observed to be cautiously used with appropriate knowledge amongst both the groups

Keywords: Fixed dose combinations, NSAIDs, Private practitioner, Tertiary care practitioners

INTRODUCTION

Non- Steroidal Anti-inflammatory drugs (NSAIDs) are a class of drugs that are used as analgesics, antipyretics & as anti-inflammatory agents. They are most commonly prescribed class of drugs for fever and pain of various origins.¹ They are also widely used as over the counter drugs by all class of people for various types of reasons.² Inflammation is the response to an injurious stimulus. Among the many mediators involved in inflammatory process, prostaglandins (synthesized by enzyme

cyclooxygenase) are major contributor to inflammation. Pain & fever are also results of increased prostaglandin synthesis. NSAIDs are a class of drugs that inhibit PG production by inhibiting cyclooxygenase enzymes and thus act as antipyretic, analgesic, and anti-inflammatory agents.¹ Since their inception NSAIDs are a part of lot many prescriptions of great many doctors. They are most widely used and misused class of drugs by all the physicians.² They are being prescribed for controlling temperature, relieving pain and in various inflammatory conditions like arthritis as anti-inflammatory agents.

However, the use of NSAIDs is not without its adverse effects. The various adverse effects are nausea, vomiting, epigastric distress, increased occult blood loss in stools, gastric mucosal damage and peptic ulceration.^{3,4,5,6,7} Rarely rashes, fixed drug eruption, urticaria, angioedema, asthma and anaphylactoid reaction may be seen.

This study was taken up to compare the prescribing pattern of Non- Steroidal Anti-inflammatory drugs among private practitioners and tertiary care teaching rural hospital, to know the most common indications for which these drugs are prescribed, to know the combinations preferred and used and to comment upon the rationality and to study the indications for which these drugs are prescribed

METHODS

The survey study was conducted with an aim to compare the current prescribing trends of Non- Steroidal Anti-inflammatory drugs among private practitioners and practitioners at tertiary care teaching rural hospital, with an objective to determine frequency of prescribing, most preferred NSAID among the two groups of practitioners, combinations preferred and used with comment upon the rationality, to find out the NSAID considered to be safe and used during pregnancy by both the groups and also to determine commonly encountered adverse events with NSAIDS use. The study was conducted on obtaining the permission from the Institutional Ethical Committee.

Objectives and procedure were explained to the practitioners. Practitioners who filled the informed consent form were included for the study. A feedback questionnaire related to use of NSAIDs was distributed among 50 practitioners. The filled questionnaire feedbacks were retrieved from 50 practitioners (which included 25 practitioners in each group).

Statistical Analysis

All data obtained were analyzed using the Microsoft Excel software. Descriptive analysis was performed on all the variables to obtain the frequency and percentage.

RESULTS

In our study we found that NSAIDs use was routine amongst private (66%) and tertiary care (77.6%) practitioners (Figure 1). We found that preferences of tertiary care practitioners were paracetamol (36%), diclofenac (20%), aceclofenac (20%), ibuprofen (20%) and etoricoxib (4%) (Figure 2) whereas the preferences of private practitioners were ibuprofen (40%), paracetamol (32%), diclofenac (16%) and aceclofenac (12%) (Figure 3). Both the groups considered diclofenac by parenteral route as an ideal measure for dealing with the emergency situations. However, parenteral paracetamol was the next best drug of choice. Use of Fixed Dose Combinations (FDC) was very high, 72% in private practitioners and

68% in tertiary care practitioners. While prescribing FDCs, private practitioners preferred NSAIDs + NSAIDs (100%) over NSAIDs + muscle relaxants (44.44%), NSAIDs + Serratiopeptidase (55.56%), and NSAIDs + antacids (44.44%). Similarly tertiary care practitioners also preferred NSAIDs + NSAIDs (100%) over NSAIDs + muscle relaxants (47.06%), NSAIDs + Serratiopeptidase (36%), and NSAIDs + antacids (28%). Of the NSAIDs + NSAIDs combination ibuprofen + paracetamol (70%) was preferred by private practitioners and diclofenac + paracetamol (61%) by tertiary practitioners. Paracetamol was considered safe during pregnancy by both groups and was being widely prescribed.

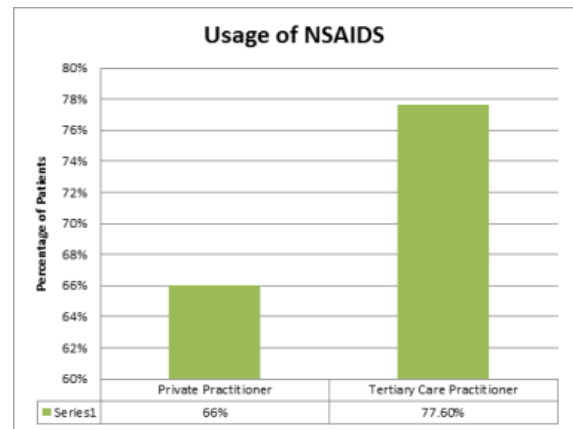


Figure 1: Percentage of Patients Prescribed NSAIDs by General Practitioners and Tertiary Care Practitioners.

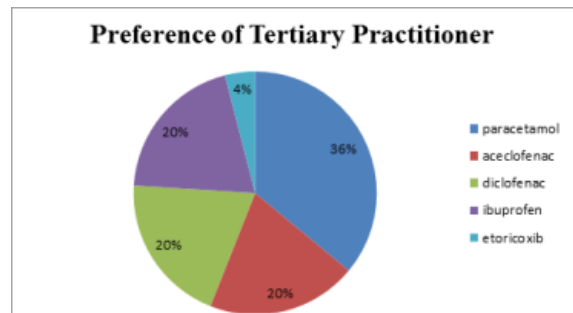


Figure 2: Preference of Tertiary Practitioner among various NSAIDs.

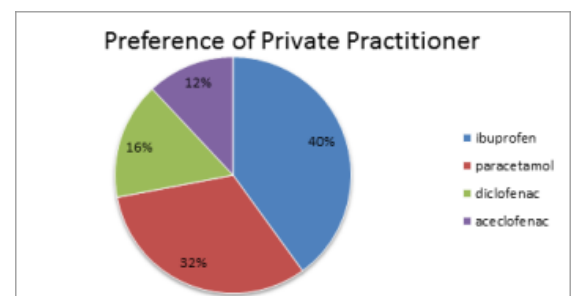


Figure 3: Preference of General Practitioner among various NSAIDs.

Adverse effects observed included gastritis (98%), urticaria (32%), and anaphylaxis (2%), although no fatality was observed. Both the groups claimed to consider cost of treatment while prescribing. Tablet form given orally was the most common dosage form used by both the groups. Dose of the drug was changed for the elderly patients by both the groups.

DISCUSSION

NSAIDs are an indispensable part of Health care system. They are used frequently and routinely by the practitioners in millions of patients for relieving pain, controlling fever, and as anti-inflammatory. In our study we found that NSAIDs were used routinely by both the group of practitioners. We found that NSAIDs were used to relieve pain of any underlying cause, controlling fever and as an anti-inflammatory agent.

Study carried out by Keys J et al. in Tayside and Fife regions showed that ibuprofen (56%), naproxen (20%) and mefenamic acid (7%) were three most preferred NSAIDs by general practitioners.² In our study private practitioners preferred ibuprofen (40%), paracetamol (32%), diclofenac (16%) and aceclofenac (12%). The duplicate prescription study at Carnoustie Tertiary Health Centre showed that Ibuprofen (31%), naproxen (20%) piroxicam (15%) were most frequently prescribed, whereas in our study tertiary care practitioners frequently prescribed paracetamol (36%), diclofenac (20%), aceclofenac (20%), ibuprofen (20%).²

As it was observed that the oral formulations (tablets) were preferred by both the group of participants, it signifies the ease of administration and also better patient compliance. However during emergency & specialized situations parenteral route was preferred. In emergency situations diclofenac was preferred by both the groups with the belief that it works faster, better and for longer duration of action. In a study by M. Hyllested, et al it was found that addition of an NSAID to paracetamol may confer additional analgesic efficacy compared with paracetamol alone.⁸ In our study we found that combinations of NSAIDs were preferred by most doctors, and of these combinations NSAIDs+NSAIDs combination was the most preferred one. Ibuprofen + paracetamol was preferred by private practitioners, this was in concordance to a study by Wilcox et al. which reported that ibuprofen based products were most preferred and beneficial.⁹ However, Aceclofenac + paracetamol was preferred by tertiary care practitioners. None of the combinations are present in WHO essential medicine list and so none of them may be considered rational.

Concerning the use in pregnancy, in France, the country's health agency contraindicates the use of NSAIDs, including aspirin, after the sixth month of pregnancy.¹⁰ Leffers et al. had reported that there may be associated male infertility in the unborn due to NSAID use in

pregnancy.¹¹ A study by Nielsen GL demonstrated an increased risk of spontaneous abortion with first trimester use of NSAIDs but with no evidence of other adverse pregnancy outcomes.¹² The odds ratios of women receiving an NSAID prescription in the last week before a miscarriage was 6.99; the odds ratio dropped to 2.69 when an NSAID prescription had been taken 7 to 9 weeks before miscarriage. Similar reports were seen with Californian study which showed an 80% increase in the risk of miscarriage associated with first trimester use of both aspirin and NSAIDs.¹³ This association was not seen with paracetamol. A case-control study published in Pediatrics showed that PPHN was significantly associated with the presence of at least one NSAID in the meconium and, in particular, the presence of aspirin, ibuprofen, or naproxen.¹⁴ NSAIDs block the synthesis of prostaglandins and thromboxane, which are needed to keep open the ductus arteriosus, when the vessel closes early, pulmonary hypertension results. Since NSAIDs cross the placenta easily and have a prolonged half-life in the fetus they should be avoided during pregnancy, especially in the last trimester.¹⁴ In our study we found that paracetamol was considered safe and used by both the groups during pregnancy. None were aware of any potential adverse effects of NSAIDs during pregnancy.

Keys J et al also found in their study that gastrointestinal side effects were more frequently reported and 16% patients were co-prescribed with a gastroprotective agent, ranitidine was most commonly prescribed. This was similar to our observation.² The American College of Gastroenterology recommends that patients requiring NSAID therapy who are at high risk should receive alternative therapy - or, if anti-inflammatory treatment is absolutely necessary, a selective cyclooxygenase type-2 inhibitor (coxib) and/or co-therapy with misoprostol or high-dose PPI is recommended.¹⁵

Cost of treatment is a very important burden to the society, higher cost of treatment has promoted OTC use of majority of the drugs. So cost of medicines should be considered before prescribing treatment. In our study both the group of practitioners claimed to consider cost of treatment before prescribing.

Not much of a difference was observed in prescribing habits of both groups. Though beneficial and routinely prescribed, NSAIDs with equal risk potential were observed to be cautiously used with appropriate knowledge amongst both the groups. Irrational use of NSAIDs combination could increase the chances of adverse events; hence the use of NSAIDs combinations should be judicious. Not only the doctors should be aware of NSAID use during pregnancy but also the pregnant females be educated about the risks of self medication with NSAIDs for trivial issues and that they should be asked to consult a practitioner whenever the need be. Since this is most commonly used class of drug, awareness about their use should be done on regular basis.

Limitations

As it was the survey study conducted among practitioners of Vadodara it may not represent the behaviour of the practitioners at other places. A prospective direct interview would be better to obtain informative data. Future studies can be carried out in different parts of India, including urban and rural areas. Exact figures were difficult to quote by different practitioners. This resulted in inaccurate or incomplete information. We could have missed much information because of practitioner's reluctance to reveal the details of his prescribing pattern.

Funding: No funding sources

Conflict of interest: None declared

Ethical approval: The study was approved by the Institutional Ethics Committee

ACKNOWLEDGEMENTS

We would like to express our gratitude to all the respondents for spending their valuable time to answer our questionnaire that helped us to successfully complete our study.

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DOI: 10.5455/2320-6012.ijrms20141181

Cite this article as: Alamchandani R, Sattigeri BM, Karelia PS. A comparative survey study on current prescribing trends in non-steroidal anti-inflammatory drugs among practitioners in private set up and tertiary care teaching rural hospital. *Int J Res Med Sci* 2014;2:1672-5.