



PRESCRIBING PATTERN OF NON STEROIDAL ANTI INFLAMMATORY DRUGS IN ANKYLOSING SPONDYLITIS IN TERTIARY CARE TEACHING HOSPITAL, HALDWANI

Pharmacology

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ABSTRACT

Introduction: The chronic and often progressive nature of the Ankylosing Spondylitis affects individuals for most of their working lives, limiting physical function, the ability to work, and perceived quality of life. NSAIDs are considered to be the first line treatment in AS, despite its suspensive effect only. Therefore, it is of utmost importance to evaluate prescribing patterns as the data is scarce in the kumaun region.

Objective: To evaluate the prescribing pattern of Non-steroidal anti-inflammatory (NSAIDs) drugs in AS patients in Rheumatology clinic of Medicine department and department of Pharmacology of Government Medical College and Dr Susheela Tiwari Government Hospital Haldwani, Uttarakhand.

Materials And Methods: This was an Observational, prospective, hospital based open label study. Patients with new and old cases of AS, aged 18 years and above and prescribed with at least one NSAID in Rheumatology clinic of Medicine department were included and assessed using WHO core prescribing indicators. Appropriate statistical analysis was done.

Result: In our study our study of 88 patients, out of which the male : female ratio was 2:1. Most commonly prescribed NSAID was Etoricoxib 43(49%) as well as Indomethacin 40(45%). Most common concomitant drug prescribed was calcium 83(94.31%) followed by vitamin D 53(60.22%) and Sulfasalazine 45(51.13%).

KEYWORDS

Ankylosing Spondylitis, Prescription, NSAIDs

INTRODUCTION

ANKYLOSING SPONDYLITIS (AS) also known as Bechterew disease^[1] is a chronic, inflammatory, rheumatoid condition which is characterized by inflammation of ligaments and joints mainly involving the lumbar region which is followed by some wearing of bone at the site of attachment known as enthesopathy. The chronic and often progressive nature of the disease affects individuals for most of their working lives, limiting physical function, the ability to work, and perceived quality of life^[2].

NSAIDs are considered to be the first line treatment in AS, despite its suspensive effect only^[3]. These are classified^[4,5,6] as Nonselective COX inhibitors (traditional NSAIDs) the Salicylates which includes Aspirin, Propionic acid derivatives, Acetic acid derivatives Preferential COX-2 inhibitors, Selective COX-2 inhibitors, Analgesic-antipyretics with poor anti-inflammatory action.

So, this study is conceptualized to determine a baseline data on drug prescribing pattern and rational use NSAIDs in AS patient. There is scarcity of data regarding prescription pattern of NSAIDs for AS patients in Kumaon region, so this study was done in the Rheumatology clinic of the Department of Medicine of Government Medical College and Dr Susheela Tiwari Government hospital, Haldwani.

MATERIALS AND METHODS

This was an Observational, prospective, hospital based open label study. The study was carried out over period of one year from Jan 2019 to Dec 2019. After taking the approval from Institutional Ethical Committee of Government Medical College and Dr Susheela Tiwari Hospital, Haldwani, patients were recruited. Written Informed Consent was obtained from the patients. Data was collected from drug prescription form of 88 Ankylosing Spondylitis patients aged 18 years

and above and had been analysed. The prescribing practices were analysed through WHO core prescribing indicators.

Collected data was coded appropriately, entered in Microsoft Excel (MS Excel) spreadsheet. In Statistical analysis was done by SPSS (Statistical Package For Social Studies) version 21.0 in Windows 7. Categorical data was presented as percentage (%). Pearson's Chi square test has been used to evaluate differences between groups for categorized variables and difference between means of the various scores was done using ANOVA and T test. The descriptive analysis of data was presented in graphs, percentages. All tests were performed at a 5% level of significance, thus an association was significant if the p-value was less than 0.05.

OBSERVATIONS AND RESULTS

In our study out of 88 patients, males 56 (64%) were more affected with AS than females 32(36%). (Figure 1)

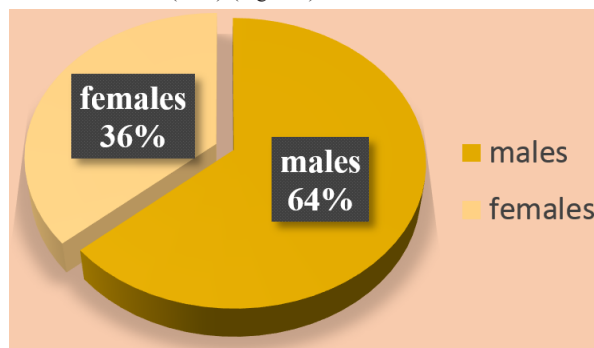


Figure 1: Distribution of patients of AS according to gender

Most commonly prescribed NSAID was Etoricoxib 43(49%) as well as Indomethacin 40 (45%) followed by Paracetamol 5 (6%). Since $p > 0.05$, it is statistically not significant (table 1).

Table 1: Prescribing Pattern Of NSAIDs In Patients

NSAIDs	Number (n)	% used in pts (n=88)	p value
Tab. Etoricoxib (90mg)	43	49	>0.05
Tab. Indomethacin (25/75mg)	40	45	>0.05
Tab. Paracetamol (500mg)	5	6	>0.05

P<0.5 is significant

DISTRIBUTION OF CONCOMITANT MEDICATIONS

Majority patients were prescribed with calcium 83(94.31%) followed by vitamin D 53(60.22%) and Sulfasalazine 45(51.13%). Mostly Rabepazole and Domperidone were required in 36 (40%) of the patients. They were followed by other drugs such as Methotrexate 16(18.18%) and Methylprednisolone 5 (5.68%). The least prescribed drugs were metformin 3(3.4%), antihypertensive medications such as Amlodipine 2(2.27%) and others 1(1.13%) each. (table 2).

Table 2: Distribution Of Concomitant Drugs In Patients

Concomitant Drugs	Number n = 88	% used in pts (n=88)
Tab. Calcium	83	94.31
Tab. Vitamin D	53	60.22
Tab. Sulfasalazine	45	51.13
Tab. Rabepazole	36	40
Tab. Domperidone	36	40
Tab. Ranitidine	16	18.18
Methotrexate (Tab/inj.)	16	18.18
Tab. Pantoprazole	13	14.8
Inj. Methylprednisolone	5	5.68
Tab. Folic acid	4	4.54
Tab. Metformin	3	3.4
Tab. Amlodipine	2	2.27
Tab. Thiocolchicoside	1	1.13
Tab. Telmisartan	1	1.13
Tab. Metoprolol	1	1.13
Tab. Atorvastatin	1	1.13
Tab. Thyroxine	1	1.13
Syp. Vitamin B12	1	1.13
Inj. Triamcinolone acetonide	1	1.13
Ed Atropine	1	1.13

ANALYSIS BY WHO CORE PRESCRIBING INDICATORS

Average no. of drugs per encounter was 3.63. Majority (95.2%) were prescribed by their generic name and there were no antibiotics prescribed. Only 52.4% of the drugs prescribed were from from essential drugs list or formulary. (table 3)

Table 3: Analysis Of Prescription Using WHO Prescribing Indicators

S.No	WHO prescribing indicators	Number or Percentage
1.	Average number of drugs per encounter	3.63
2.	Percentage of Drugs Prescribed by generic name	95.2
3.	Percentage of encounters with antibiotics prescribed	0
4.	Percentage of encounters with injections prescribed	14.7
5.	Percentage of Drugs Prescribed from essential drugs list or formulary	52.4

DISCUSSION

In our study about prescribing pattern of NSAIDs in AS, 88 patients were recruited, out of which the male: female ratio was 2:1. In women the higher levels of hormone estrogen has an anti-inflammatory effect on Spondyloarthritis (SpA) manifestations by inhibiting TNF alpha production. Similar male dominance was reported by Sanjeev Prakash et al^[7] in their study with a Male to female ratio of 16:1. Contrary to our study, GreeshmaRejimon et al^[8] in their study revealed that out of 65 patients, 57.6% patients were females and 43.4% were males.

Most commonly prescribed NSAID, in our study was Etoricoxib

43(49%) as well as Indomethacin 40(45%) followed by Paracetamol 5 (6%) as Etoricoxib is a selective inhibitor of COX-2, preventing the synthesis of prostanoids (PGs, PGI₂ and TXA₂) and thus have analgesic, antipyretic and anti-inflammatory properties. The time required for the drug to reach maximum concentration in the blood is short (Tmax = 1 hour) and plasma half-life being 22 hours is effective in controlling acute pain.^[6] It is also cost effective due to decreased frequency of administration in a day and is responsible for greater quality adjusted life years.^[9] Indomethacin is a non-selective COX-1 inhibitor and has no antipyretic action. Similar to our study, GreeshmaRejimon et al^[8] revealed that the most commonly prescribed NSAIDs in Orthopaedic department was found to be Etoricoxib (33.34%) followed by Acetaminophen and Tramadol combination (27.45%) followed by Celecoxib (17.64%), Diclofenac sodium (13.72%) and Tramadol (7.85 %). Contrary to our study Jyothi R et al^[10], commonly prescribed NSAIDs were Aceclofenac (43%) followed by Etodolac (25%). Mohammed A Alshakka et al^[11] in their study found that Diclofenac sodium was the most commonly prescribed NSAIDs for about 21.5% of the patients.

Majority patients were prescribed with Calcium 83(94.31%) followed by vitamin D 53(60.22%) and Sulfasalazine 45(51.13%). Concomitant medications were prescribed to reduce disease progression and to prevent the adverse drug reactions associated with NSAIDs, decreasing patients' manifestations due the disease itself or for comorbidities. Similarly, calcium salts (53.85%) were found to be more prescribed in a study^[8] other than NSAIDs followed by vitamin supplements (23.08%), hypoglycemic agents (10.77%), benzodiazepines (7.69%), and anti-hypertensive (4.61%). On the contrary, Greeshma Rejimon et al^[8] in their study reported that ranitidine (51.72%) was most commonly prescribed along with NSAIDs for gastro protection followed by proton pump inhibitors, Pantoprazole (41.38%), and Rabepazole (6.9%).

Mohammed A Alshakka et al^[11] specified that the cost of drugs per prescription can be an indication of patient non-adherence to medication. Commitment of using generic names may result in reducing the cost of prescriptions. In our study, 95.2% of the prescriptions were according to the drugs generic name which is almost identical with the WHO standard (100%) and is a good indicator for rational prescribing practices. This is in concordance to a study by P. R. R. Vaishnavi et al^[12] where 91.15% prescriptions containing NSAIDs were prescribed with generic names which is almost identical with the WHO standard (100%). In our study, 52.4% of the drugs prescribed were from essential drugs list or formulary. Similarly, around 73.3 % of prescribed drugs was from the Essential Medicine List (2017), which is lower than the value recommended by WHO which is 100%.

CONCLUSION

The study finally concludes that males were more affected than women with ankylosing spondylitis. Etoricoxib and Indomethacin were commonly prescribed NSAIDs. Prevalent drug prescribing practices were in concordance with WHO core prescribing indicators. The WHO prescribing indicators serves as an important parameter for assessing the overall prescribing pattern and its rationality at a concerned health care facility.

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