

# Prescription Monitoring of Management Pattern of Osteoarthritis with Non-Steroidal Antiinflammatory Drugs at PUHC, Chandigarh in India

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The present prospective study was conducted in order to establish the drug-prescription trend of non-steroidal antiinflammatory drugs in the management pattern of osteoarthritis at Panjab University Health Centre, Chandigarh, India. The study was carried out in between the months of November 2003 and March 2004. Data was collected from outpatients who visited Panjab University Health Centre. WHO based prescription-auditing performa was used for data collection. Demographic analysis of this prospective and observational study revealed that out of 84 patients most were females (63.1%) and maximum patients were in the age group of 40-60 (59.5%). Most of the patients at Panjab University Health Centre had primary generalized Osteoarthritis with the back (50%) being the site most commonly affected followed by knee (45.23%) and hips (14.3%). Pain and joint stiffness was the common feature of the clinical presentation. Non-Steroidal Antiinflammatory Drugs were mostly prescribed during the observation period predominantly for pain relief. The most commonly prescribed agents were nimesulide, paracetamol, diclofenac and ibuprofen. Mostly the drugs were administered in the tablet form (86.05%) with least use of gels/creams and capsules. The use of non-drug therapies including physiotherapy and exercise was least found. The present study represents the current prescribing trend of non-steroidal antiinflammatory drugs for osteoarthritis at Panjab University Health Centre and it also suggested that there is still considerable scope for improvement, particularly in prescribing non-drug therapies and improving dispensing habits.

Osteoarthritis (OA) is a common musculoskeletal disorder among the elderly people and its prevalence among relatively young people is increasing. It is necessary to have a proper assessment of the present therapy of OA<sup>1</sup>. Non-steroidal antiinflammatory drugs (NSAIDs) are used widely for the variety of disorders related to pain and inflammation including musculoskeletal disorders<sup>2</sup>. They make up one of the largest groups of pharmaceutical agents used worldwide as well as in India<sup>3</sup>. Besides their different therapeutic uses, NSAIDs are also one of the common causes of adverse drug reactions reported to drug regulatory agencies as well as in many clinical and epidemiological studies. Most common of them are those affecting the gastrointestinal (GI) system notably dyspepsia and bleeding<sup>4-6</sup>. A new approach to drug utilization study (determining the number of drugs account for 90% of drug use (DU 90%) along with previous studies presents quantitative difference in the use of NSAID's at different countries<sup>7-8</sup>.

Despite the considerable socio economic impact of rheumatic diseases, few studies have been conducted in India on the management of patients with OA. In our

earlier studies at Punjab University Health Centre (PUHC), it was observed that NSAIDs were one of the most prescribed drugs at PUHC<sup>9,10</sup>. We therefore designed a study to provide insights into management of osteoarthritis and role of NSAIDs in its management at a single centre PUHC, Chandigarh.

The PUHC, also known as Bhai Ghanayia Ji Health Centre is located in the Panjab University Campus, Sector 14, Chandigarh. It caters to the healthcare needs of the students (about 5,000) and the employees of the Punjab University (teachers, non-teaching members and their dependents), a population of about 25,000. Present prospective study was conducted at PUHC after getting the official consent of the Chief Medical Officer (CMO) to collect the information from the patients attending the OPD through a chance random sample method. The protocol was prepared as per WHO guidelines, which was approved by Institutional Ethical Committee (IEC). The study was done in between the months of November 2003 and March 2004. Data was collected during the OPD timings (8:30 AM to 12:30 PM) and patients were interviewed and information was collected from their prescription card. Besides this, effort was also made to segregate the patients based on the socio-economic criteria. Patients were categorized into grade-I

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(University teachers or class I administrative officers), grade-II (clerical staff, nurses, non teaching staff and government employees), grade-III (gardeners, security guards, white washer, sweepers and peon). All the prescriptions written by the various physicians at the PUHC, containing NSAIDs were included in this study. Patients who did not cooperate and prescriptions containing incomplete information were excluded from the study.

During the whole study period, a total of 100 prescriptions were monitored of which 16 were excluded as per the exclusion criteria. Demographic and the clinical characteristics of 84 participating patients are shown in Tables 1 and 2 where as data related to different dosage forms and respective NSAID's has been shown in Table 3.

A prescription-based survey is considered to be one of the most effective methods to assess and evaluate the prescribing attitude of physicians and dispensing practice of pharmacists<sup>11,12</sup>. On the basis of this prospective and observational study carried out among the 84 patients it

**TABLE 1: DEMOGRAPHIC ANALYSIS OF PATIENTS WITH OSTEOARTHRITIS (STRATIFIED BY SEX) AT PUHC**

	Male (n=31)		Female (n=53)		All patients (n=84)	
	n	%	n	%	n	%
<b>Age groups (in years)</b>						
<40	8	25.80	12	22.64	20	23.8
40-60	18	58.06	32	60.37	50	59.5
60-80	5	16.12	9	16.98	14	16.6
<b>Socioeconomic status</b>						
Grade-III	2	6.45	6	11.32	8	9.5
Grade-II	24	77.41	40	75.47	64	76.20
Grade-I	5	16.12	7	13.20	12	14.28

n=total number of patients, PUHC - Punjab University Health Centre

**TABLE 2: CLINICAL ANALYSIS OF PATIENTS WITH OSTEOARTHRITIS (STRATIFIED BY LOCATION AND SYMPTOMS) AT PUHC**

	Male		Female		All patients	
	n	%	n	%	n	%
<b>Location (a)</b>						
Knee	14	45.16	24	45.28	38	45.23
Hips	4	12.9	8	15.09	12	14.3
Back pain	16	51.61	26	49.06	42	50
Others	04	12.9	11	20.75	15	17.9
<b>Clinical symptoms</b>						
Pain	31	100	53	100	84	100
Joint stiffness	24	77.41	38	71.69	62	75.60

n= number of patients, (a) = several patients had more than one area under problem

**TABLE 3: SUMMARY OF DIFFERENT DOSAGE FORMS AND NSAIDS USED AT PUHC**

Total NSAIDs prescribed = 86		
	n	%
<b>Dosage form prescribed</b>		
Tablet	74	86.05
Capsule	2	2.32
Gel/cream	10	11.62
<b>NSAIDs prescribed</b>		
Diclofenac (a)	22	22
Paracetamol (a)	24	24
Nimesulide (a)	32	32
Ibuprofen (a)	18	18
Rofecoxib/valdicoxib	4	4

n = number of prescriptions, (a) = Drugs comprising DU-90%

was found that osteoarthritis was more prevalent in females (63.1%). Most of the patients were in the age group 40-60 (59.5%) followed by those in the age group below 40 (23.8%). This suggested that there is an alarming increase in the younger patients due to changed lifestyle and eating habits. Socio-economically, most of the patients were of grade II. As grade II was consist of clerks, government employees and other office workers. Therefore, there is an urgent need to create awareness among the grade II employees of the University for effective management of different osteoarthritis problems and their prevention and management pattern via different drug and non-drug therapies. The clinical location and symptom based analysis of the data showed that maximum prescriptions were of back (50%) and knee (45.5%) related problems in the females.

In the present study paracetamol, diclofenac and nimesulide and ibuprofen made the DU-90% segment. The DU 90% (drug utilization 90% segment is the number of drugs accounts for 90% of the total drug use), methodology (suggested by WHO) has been widely used as a tool of measuring qualitative and quantitative drug consumption in European countries<sup>8</sup>. Despite certain limitations, this methodology has proved to be simple, inexpensive, rational, understandable and easy to use. It provides useful information on drug use patterns and could be widely used as a basis for preparing prescription guidelines<sup>8</sup>. It could also generally serve as a tool for monitoring adherence to evidence based recommendations. This is an important indicator for assessing the quality of drug prescription. The DU 90% segment has also been applied to look at to what extent the evidence of relative toxicity with different drugs was implemented. Nimesulide is prescribed heavily at PUHC (32% of the total NSAIDs prescribed for osteoarthritis

problems). It was reported to be associated with severe adverse effects related to liver when given chronically<sup>13</sup>. Generally the physicians at PUHC prescribed it only for 1 or 2 days, which did not cause any serious complications in patients.

On the basis of the serious gastrointestinal complications of NSAIDs published between 1990 and 1999, researchers came up with the ranking of high risk (ketoprofen, piroxicam) and low risk (indomethacin, diclofenac) NSAIDs<sup>4-6</sup>. Most of the NSAIDs prescribed at PUHC (paracetamol, diclofenac and nimesulide) were in low risk group and the NSAID accounting for high risk did not make to DU 90%. Although, it is quite clear that newer drugs, selective COX-2 inhibitors (rofecoxib, celecoxib) in the market are safer than the traditional NSAIDs, on account of their gastric tolerability, but these drugs because of their high cost are not prescribed generally<sup>3,12</sup>. Along with NSAIDs different other classes of drugs were also prescribed, important among them are calcium and vitamin D supplements in order to increase the bone strength and bone forming substances in the body. These are necessary because NSAIDs are bound to provide only the symptomatic relief from pain and stiffness of joints. There were no prescriptions of non-drug therapies such as physiotherapy and exercise. About the dispensing habits, although the pharmacists at PUHC dispensing counter dispensed the drugs with oral instructions, but still there were certain lacunae in their prescribing habit. Such as there was no written instructions for the patients and use of single packet for all the drugs dispensed. There should be separate packet for each drug with written instructions over it.

On the basis of the present study it was found that although the use of low risk traditional NSAIDs, co-prescription of supplements are some of the positive points in the management pattern of osteoarthritis at PUHC but there are still a considerable scope of the improvement in the prescribing pattern such as under utilization of newer NSAID's, low prescription of non drug therapies and over prescription of nimesulide and

dispensing pattern such as inadequate written instructions by pharmacists of NSAIDs at PUHC (prescribed by general practitioners). Such types of studies should be designed at larger scale to generate and test hypothesis on NSAID's prescribing habits as well as drug utilization and current prescribing trends which will lead to more rational use of drugs in the management of osteoarthritis related problems.

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