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A PROSPECTIVE STUDY ABOUT PRESCRIBING TRENDS AND USAGE OF NSAIDS AMONG ARTHRITIS PATIENTS

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ABSTRACT

Background:

Pharmacists are the custodians of drugs thus their education, training, behaviors and experiences would affect the future drug use at community and hospital pharmacies. Arthritis is a common disease that causes substantial morbidity in most patients and premature mortality in many.

Purpose:

The purpose of the study is to investigate the disease condition, treatment practices and proper guidelines of the arthritis in hospitals (Government and Private). To overcome and proper management of the associated complications different medications may need to be used.

Method:

This study was done based on the survey of prescribed medication to find out the pattern and use of medication during arthritis. Prescriptions were collected from different private and government hospitals, Pakistan. Statistical analysis was done using Microsoft Excel.

Results:

After evaluation of the prescription it was seen that arthritis more prevalent in females and usually occur at age of above 30 years. NSAIDs, Supplements, Analgesics and PPIs were also abundant among other classes.

Conclusion:

The study concluded that most of the patients were treated with combination therapy and the most frequently prescribed class of arthritic drugs was NSAIDs and Supplements. Health practitioners as well as patient need to follow standard guideline or follow-up for medication to minimize further complication and to ensure a healthy nation.

Key words: Arthritis, Prescription pattern, Anti-arthritic drugs

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INTRODUCTION

The first recognized description of rheumatoid arthritis was in 1800 by French physician Dr. Augustin Jacob Landre-Beauvais (1772-1840) who work in a famous Salpetriere hospital in Paris. The term rheumatoid arthritis first time used by British rheumatologist Dr. Alfred Baring Garrod in 1859 **[1]**. "Arthritis" is a term being used to describe various rheumatic diseases/conditions which affect joints. A rheumatic condition typically includes pain, aching, stiffness and swelling in/around one or more joints. Symptoms can be developed gradually/suddenly. Such conditions can also involve the immune system and various internal organs of the human body. Some forms of arthritis (like rheumatoid arthritis, lupus) can affect multiple organs and causing widespread symptoms **[2]**. There are four major warning signs of arthritis include pain, swelling and redness of joints, stiffness and difficulty moving a joint **[3].**There is not a single cause in all the types of arthritis, as causes vary depending upon the type or the form of arthritis. The potential causes may include injury, abnormal metabolism, inheritance, infections, immune system dysfunction and genetic makeup. Additional factors may also involve like previous injury, infection, smoking and physically demanding occupations. Diet and nutrition can play a role in managing arthritis and the risk of arthritis **[3]**. Arthritis mostly observed in adults (aged 65 years or older), but people of all ages (including children) can be affected by it **[2]**. An estimated 52.5 million US adults (22.7%) annually, from 2010-2012, told that they have some form of arthritis, rheumatoid arthritis, gout, lupus, or fibromyalgia. An estimated 49.7% of the adults 65 years/older had diagnosed arthritis from 2010-2012

[4]. An estimated 30.8 million adults had osteoarthritis from 2008 to 2011**[5]**, 1.5 million adults had rheumatoid arthritis in 2007 **[6]**. Annual prevalence of ever having doctor-diagnosed gout among US adults in 2007–2008 was 3.9% (8.3 million individuals) **[7]**.Prevalence of gout among men and women was 5.9% (6.1 million) and 2.0% (2.2 million) respectively **[8]**. An estimated 5.0 million adults had fibromyalgia in 2005**[9]**. CDC (center for disease control) examined the presence of four specific chronic conditions among arthritic patients that are chronic respiratory conditions, diabetes, heart disease and stroke. About half (47%) of US adults with arthritis also have at least one of these co-morbid conditions (2007 National Health Interview Survey) **[10]**.Different diagnostic tests performed as to confirm the type or severity of arthritis like imaging (like ultra-sonography, magnetic resonance imaging (MRI), X-ray), blood tests (like rheumatoid factor (RF),erythrocyte sedimentation rate, complete blood count, C-reactive protein **[11]**, anti-citrullinated protein antibodies (ACPAs) and anti-nuclear antibody (ANA) **[12]**,other tests (like anti-MCV assay **[13]**, point of care test **[14]**, liver function test, anti-nuclear antibody, renal function, synovial fluid analysis **[11]**. Goals for management of patients suffering from Rheumatoid Arthritis are as to decrease pain and Inflammation, prevent joint destruction, improve the functional ability and maintain normal life style. Education of patient is an important aspect of treatment. Treatment of each patient is individualized and based on factors such as age, occupation, family responsibilities and many others. Arthritis can be treated by using different approaches like pharmacological and non-pharmacological **[15]**. Prescription writing can be depicted as an art. Since, it reflects the directions given by the prescriber to the patient or their representatives. Examining and monitoring of prescriptions and drug utilization studies can actually analyze the recent trend of prescription pattern which will further help to identify the problems and provide feedback to prescribers **[16-20]**.

The aim of this study is to evaluate prescribing pattern of anti-arthritic drugs and usage of NSAIDs in arthritis among private as well as government hospitals and to determine the type of drugs commonly prescribed and the use of NSAIDs.

METHODOLOGY

Study Design

A prospective observation study was carried out for a period of 2 month from 10 Feb 2017 to 10 April 2017. During this period 240 prescriptions were collected. Prescriptions were collected from the private as well as government hospitals. Written (prescriptions) as well as verbal information was gained.

Study Population

A total of 240 arthritic patient's prescription data was collected for this study, without focusing on only one gender that is prescriptions of both male and female arthritic patients were collected.

Data Collection Procedure

During collection, the patient and physician as well as the concerned staff was informed about the objective of collecting prescriptions. Prescriptions were taken and verbally the information was also gained. In this way, the prescribing trend in arthritis and usage of NSAIDs in arthritis was studied.

Data Collection Tool

In this study, the patients were categorized according to the age groups, gender, generic they were prescribed and the drug class they belong to find out the overall picture of drug use among the arthritic patients.

Data Analysis

Statistical analysis was performed using the Microsoft Excel. Various secondary sources like books, journals, project reports, project documents, unpublished reports, news report and internet are also used for this study.

RESULTS

During the study period we collected a total of 240 patient's prescriptions. Prescribing trends studied among different age groups, gender, classes of drugs, drugs generics and NSAIDs used. The results of the study discussed below:

Basic Demographic Data (Age and Gender)

The age distribution of patients is given in Figure 1. In our study the maximum number of arthritic patients belonged to the age group of 35-45 (47.62%) followed by the age group 46-55(30.95%), 56-65 (11.90%) and 9.52% of the patient in the age group of 66-75 years. Out of 240 patients 57 were male patients and 183 were female patients indicating that arthritis is slightly more prevalent in female. The percentage of arthritic patients with respect to gender (female and male) showed in different age groups in Figure2. The maximum number of male and female arthritic patients belonged to the age group of 35-45 years. The total percentage of male and female arthritic patients observed during study was 23.75% and 76.25% respectively.

Prescribed Drugs

The patients were categorized into several groups according to the drugs prescribed to arthritic patients. Prescribed generic was noted and the comparison among them done by finding the individual percentages shown in Table1.

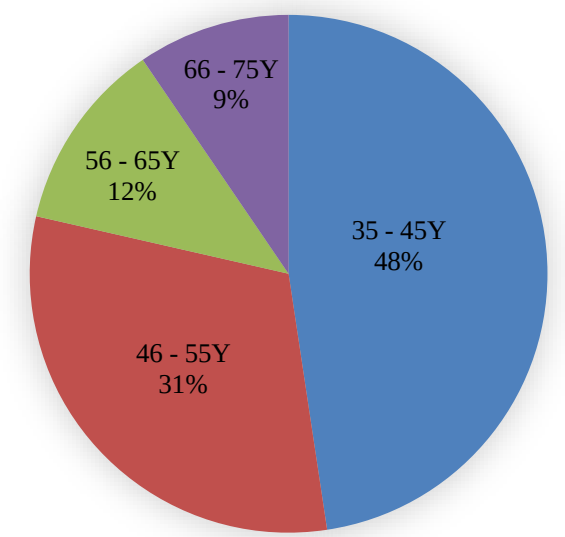

Figure 1: Disease occurrence according to age

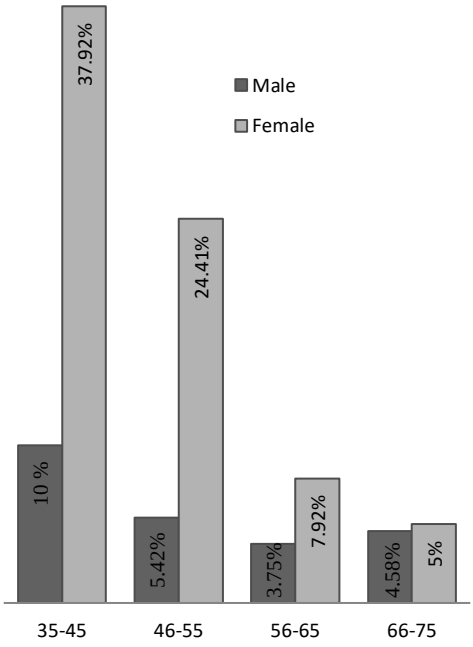

Figure 2: Disease occurrence according to gender

Table 1: Most commonly used individual drugs in rheumatoid arthritis patients

Drugs	Number (%)
Leflunomide	38 (15.83%)
Sulphasalazine	32 (13.33%)
Methotrexate	23 (9.58%)
Hydroxychloroquine	14 (5.83%)
Prednisolone	17 (7.08%)
Paracetamol	26 (10.83%)
Orphenadrine Citrate, Paracetamol	16 (6.67%)
Tramadol HCl	11 (4.58%)
Menthol	15 (6.25%)
Ibuprofen	4 (1.67%)
Flurbiprofen	10 (4.17%)
Mefenamic acid	72 (30.00%)
Aceclofenac	6 (2.50%)
Diclofenac Sodium	75 (31.25%)
Diclofenac Potassium	4 (1.67%)
Nimesulide	24 (10.00%)
Naproxen	6 (2.50%)
Celecoxib	18 (7.50%)
Piroxicam	3 (1.25%)
Tizanidine	10 (4.17%)
Omeprazole	90 (37.50%)
Esomeprazole	18(7.50%)
Ranitidine	14 (5.83%)
Ciprofloxacin	13 (5.42%)
Metronidazole	9 (3.75%)
Cefixime	6 (2.50 %)
Folic Acid	24 (10.00%)
Ferrous fumarate, Vit C, Intrinsic factor, Vit B, Folic acid	7 (2.92%)
Vit D3	23 (9.58%)
Calcium Carbonate with Vit D	33 (13.75%)
Ossein Mineral complex, Vit D	5(2.08%)
Calcium, Minerals, Vit D	16 (6.67%)
Calcium with Vit D	36 (15.00%)
Calcium with Vit C+B6+D3	11 (4.58%)
Multivitamins, Multiminerals, Other supplements	40 (16.67%)

Class of Drugs

A number of drugs have been found to treat various complications associated with arthritis. The study revealed that most of the prescribed drugs were of some specific classes Figure3.

NSAIDs

Most commonly prescribed NSAIDs in the Rheumatoid Arthritis patients and their individual percentages were shown in Figure4. Among various NSAIDs, Diclofenac Sodium was the most commonly prescribed NSAID (31.25%).

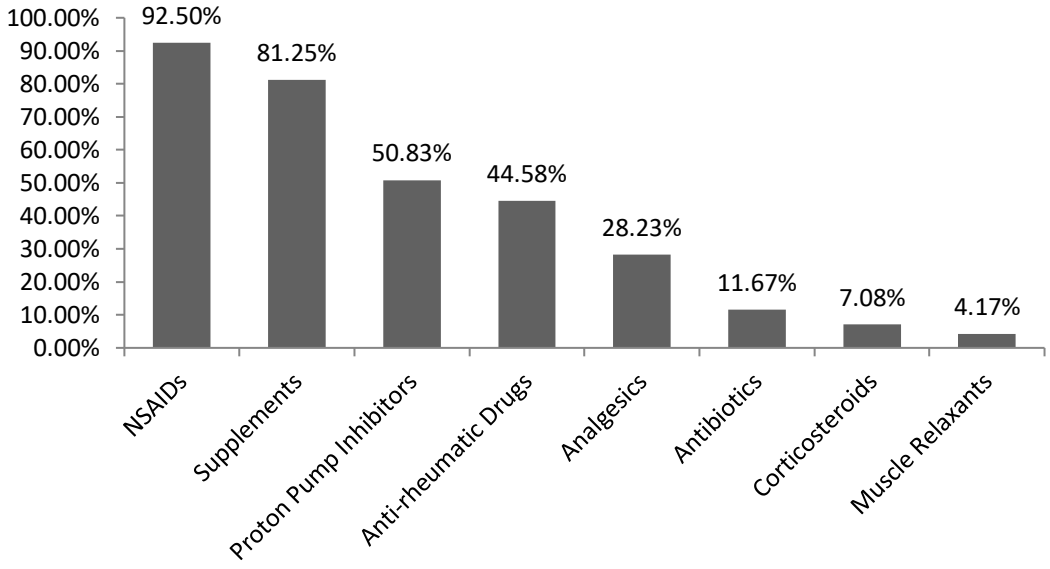

Figure 3: Commonly prescribed drug classes in the rheumatoid arthritis patients

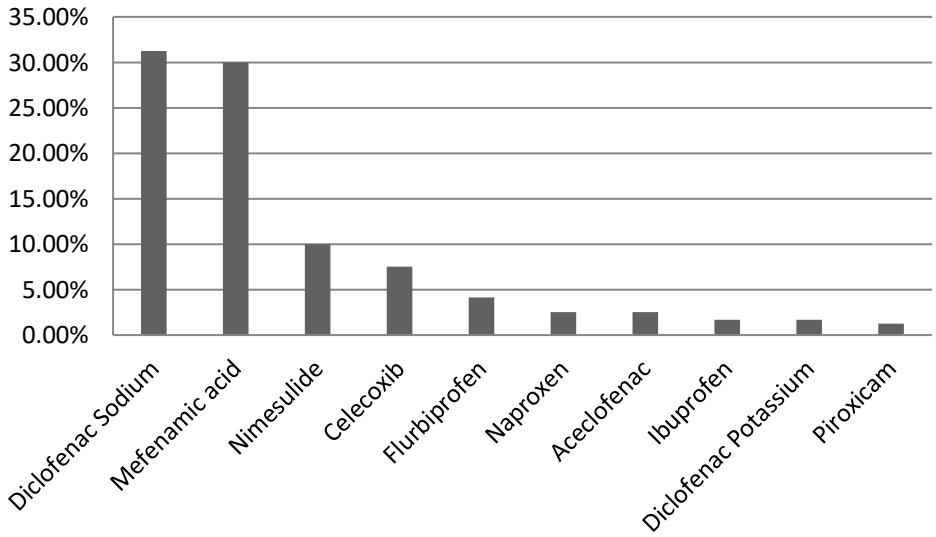

Figure 4: Commonly prescribed NSAIDs in the rheumatoid arthritispatients

DISCUSSION

Arthritis is an acute or chronic inflammation of joint, often accompanied by pain, swelling and stiffness and resulting from infection, injury. Pain is the most common symptom of arthritis that is being related with bad functional outcomes and poor quality of life. Various types of arthritis are widely spread among population making them a clinical problem with social, psychological and economic burden. Arthritis management is complex and relies on a combination of approaches (i.e. pharmacological and non-pharmacological drug treatment) for most of the patients. So management of arthritis mainly relies on optimization of pharmacotherapy. Unfortunately, there are various reports of extra-medication reported because of pain and this misuse leads to intoxication as well as occurrence of adverse drug reactions, hospitalizations, and additional treatment resulting in increased treatment cost **[18]**.The treatment options have primarily focused on alleviating the pain associated with arthritis. Periodic evaluation of drug utilization patterns required to make appropriate modifications in prescription of drugs to increase therapeutic benefit as well as to decrease adverse effects. Study of prescribing patterns seeks to monitor, evaluate and if necessary, suggest modifications in the prescribing behavior of medical practitioners to make medical care rational and cost effective. The aim of drug prescribing studies is to provide feedback to prescriber and create awareness among them about rational use of medicines **[21]**. Little is known about the current disease-modifying anti-rheumatic drug (DMARD) preferences. Sulphasalazine was the agent of first choice, but currently methotrexate is widely regarded as the standard against which other DMARDs should be compared. In several recent surveys have shown that combinations of DMARDs are preferred **[22]**.The results showed that out of 240 patients, 57 (23.75%) patients were males and 183 (76.25% patients were females. The present study also revealed that arthritis is most common in the age group of 35-45 years. Combination therapy was preferred over mono-therapy in the management of arthritis. The overall drug usage in this study revealed that a total of 769drugs were prescribed. Out of which, NSAIDs were most prescribed [222 (92.50%)] followed by Supplements [195 (81.25%)], Proton Pump Inhibitors [122 (50.83%)], Anti-rheumatic Drugs [107 (44.58%)], Analgesics [68 (28.33%)], Antibiotics [28 (11.67%)], Corticosteroids [17 (7.08%)] and Muscle Relaxants [10 (4.17%)].The ACR guidelines suggest the use of simple analgesic like Paracetamol in the relief of mild-to-moderate joint pain, but our study reveals that diclofenac was the first preferred drug by the orthopaedicians.

CONCLUSION

The present study was carried out to assess the current trends in prescribing patterns of anti-arthritic drugs in the treatment of arthritis in private as well as government hospitals. From this study it is concluded that arthritis is more prevalent in females than in males. Arthritis occurs more often above age of 30 years. Most of the patients with arthritis received drugs or medicines in combination and most frequently used class of drugs were the NSAIDs, supplements and antirheumatic drugs. The incidence of arthritis is dependent upon several factors like age, ethnicity, dietary habit, environmental and physiological factors, hence further studies are necessary to setup a rationale or pattern for the choice of medication; taking into consideration the demographic factors involved in the prevalence of arthritis.

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