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Original Research Article

Navigating medications: a prospective study on drug use in rheumatoid arthritis management

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ABSTRACT

Background: Rheumatoid arthritis (RA) is a chronic autoimmune disease-causing joint inflammation, pain, and potential joint damage. Effective management requires a combination of pharmacologic treatments to reduce disease activity and improve patient outcomes.
Methods: This prospective study investigated drug utilization patterns, medication adherence, and their impact on RA management. Data were collected over one year from 510 RA patients visiting the orthopaedic department at Raichur Institute of Medical Sciences. Demographic details, clinical characteristics, medication regimens, adherence levels, and adverse drug reactions were recorded.
Results: Female patients, primarily aged 51-65 years, were predominantly affected by RA. Non-steroidal anti-inflammatory drugs (NSAIDs) were the most commonly prescribed medications, with oral administration being preferred. Family history and older age were significant risk factors. Disease-modifying anti-rheumatic drugs (DMARDs), especially in combination, were preferred for managing RA. NSAID usage led to adverse effects like gastric discomfort, underscoring the need for careful monitoring.
Conclusions: This study highlights the importance of early detection, personalized treatment strategies, and the need for further research into novel therapies. It offers valuable insights into drug utilization and medication adherence, with implications for improving RA management and patient outcomes.

Keywords: Rheumatoid arthritis, Drug utilization, Medication adherence, Biologic agents, Patient outcomes, Prospective study

INTRODUCTION

Rheumatoid arthritis (RA) is a chronic autoimmune disorder that primarily affects the joints, leading to inflammation, pain, swelling, and eventual joint destruction if left untreated. It is a leading cause of disability worldwide, with patients experiencing a diminished quality of life due to persistent symptoms and progressive joint damage. The primary goals of RA management are to reduce disease activity, alleviate symptoms, and prevent joint damage and disability.[1] Achieving these goals often requires a multi-faceted approach, including the use of non-steroidal anti-inflammatory drugs (NSAIDs), corticosteroids, disease-modifying anti-rheumatic drugs (DMARDs), and biologic agents, all aimed at controlling inflammation and halting disease progression.

Understanding drug utilization patterns in RA patients is critical for several reasons. First, it helps clinicians identify the most commonly used medications and understand the rationale behind their selection. This information is crucial

for aligning prescribing practices with the latest evidence-based guidelines, ensuring that patients receive optimal care. Additionally, examining drug utilization patterns provides valuable insights into patient adherence, which is a significant determinant of treatment success. High adherence to prescribed therapies is linked to better disease control and improved patient outcomes, while poor adherence can lead to suboptimal treatment responses and increased healthcare costs.[2] RA treatment regimens are often complex, involving multiple medications with different mechanisms of action, which can complicate adherence and treatment outcomes.[3]

In addition, RA presents several challenges, including the heterogeneity of the disease, variability in patient responses to treatments, and the potential for adverse drug reactions. Factors such as medication side effects, financial barriers, and individual patient lifestyles contribute to the complexity of RA management, influencing adherence and treatment efficacy.

This study seeks to offer a comprehensive examination of drug utilization patterns among rheumatoid arthritis (RA) patients, identifying key factors that influence medication adherence and evaluating how these factors impact clinical outcomes. By analysing patient demographics, clinical characteristics, medication regimens, and adherence levels, the study aims to enhance understanding of current RA management practices. Additionally, the research will pinpoint barriers to adherence and propose evidence-based strategies to improve patient compliance, ensuring that therapies achieve their full potential.

Ultimately, the findings will inform clinical practice and healthcare policy, providing insights that can optimize RA management and improve patient outcomes. Data will be meticulously collected on patient demographics, clinical features, medication regimens, adherence levels, and clinical outcomes.[4] The analysis will delve into the interplay between these variables, drawing conclusions about the effectiveness of different treatment strategies and identifying best practices in RA management.[5] Through this multifaceted investigation, the study aspires to provide a nuanced understanding of how medications are utilized in RA treatment, uncovering the factors that drive success and paving the way for more effective, patient-centered approaches in managing the disease.

METHODS

Study place

The study was done in the Orthopaedic department at Raichur Institute of Medical Sciences, Raichur.

Study duration

The study was conducted for a period of one year from December 2016 to November 2017.

During this period, patients satisfying the inclusion criteria were individually recognized, and information about their details, adverse drug reactions, suspected drug, and concomitantly administered drugs was recorded in the central drugs standard control organization (CDSCO) adverse drug reaction reporting form. Data was collected as per the designed case record form (CRF) with informed consent from the patient.[6]

Inclusion criteria

For this study, the inclusion criteria consisted of patients diagnosed with arthritis who visited the orthopaedic department. Only individuals aged 18 to 80 years, irrespective of gender, were included to ensure a diverse yet appropriate patient sample for evaluating drug utilization and adherence patterns in arthritis management.

Exclusion criteria

The exclusion criteria were set to safeguard the integrity of the study and eliminate potential confounding factors. Patients under the age of 18 were excluded, as the focus of the study was on adults. Additionally, individuals with conditions such as gastroesophageal reflux disease or peptic ulcers, which could interfere with medication regimens commonly used in arthritis treatment, were excluded. Pregnant and lactating women were also excluded due to the potential risks to the fetus or infant posed by certain arthritis medications.

Furthermore, individuals with pre-existing cardiovascular conditions or significant neurological deficits were excluded to avoid complications that could affect the study outcomes. Lastly, terminally ill patients were not included, as they were unlikely to provide reliable data for the study's long-term objectives.[7]

Statistical analysis

Demographic and baseline variables

Analyzed using descriptive statistics. Continuous variables will be summarized using mean (±SD). Parametric data will be analyzed using the student t-test. Categorical variables will be analyzed using chi-square tests.

Statistical tools

All statistical analyses will be performed using the Statistical Package for the Social Sciences (SPSS)8.

RESULTS

The case sheets of 510 patients diagnosed with rheumatoid arthritis (RA) were analyzed, revealing several significant trends and observations. A higher prevalence of RA was found in females (67.07%) compared to males (32.96%), as shown in Table 1. The majority of patients fell within the 51-65 years age group (89.02%), with a smaller proportion (6.09%) in the 66-80 years range, as illustrated

in Table 2. In terms of treatment, non-steroidal anti-inflammatory drugs (NSAIDs) were the most commonly prescribed class of drugs, accounting for 26.58% of prescriptions, followed by disease-modifying antirheumatic drugs (DMARDs) at 16.76%, as seen in Figure 1.

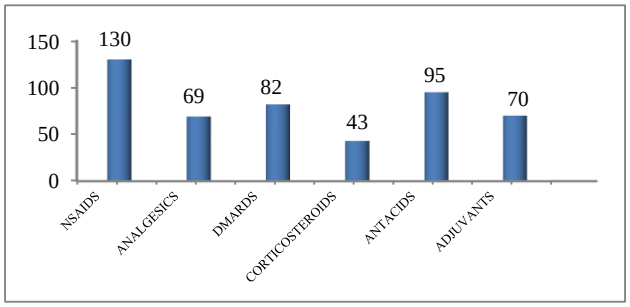

Figure 1: Details of class of drugs prescribed in rheumatoid arthritis.

Analgesics, antacids, and adjuvants made up the remaining prescriptions, with NSAIDs being the preferred choice for symptom management. Oral administration was overwhelmingly favoured, with 95.29% of patients receiving their medications orally, while injectables and topical treatments were less common, as detailed in Table 3. Regarding risk factors, a family history of RA was the leading risk factor, affecting 45.12% of patients, followed by old age at 39.02%, as presented in Table 4. Among the NSAIDs prescribed, Diclofenac (33.33%) and Aceclofenac (30.30%) were the most common, highlighting the preference for COX-2 inhibitors, as described in Table 5. Combination therapy with DMARDs was the most frequently used treatment regimen, comprising 59.75% of cases, with Methotrexate and Sulfasalazine being used less frequently in monotherapy, as shown in Table 6. Additionally, the combination of Aceclofenac and Paracetamol was prescribed in 13.41% of cases, as seen in Table 7. Adverse drug reactions to NSAIDs, particularly gastric discomfort (1.86%) and abdominal pain (0.93%), were noted, with RA patients experiencing higher rates of these reactions compared to the general population, as detailed in Table 8. These findings offer valuable insights into the demographics, treatment preferences, and associated risks and adverse effects for RA patients, helping to inform clinical practice and improve patient care. Rheumatoid arthritis patients experience higher rates of adverse reactions with NSAIDs compared to the general population. These findings provide valuable insights into the demographics, treatment preferences, and associated risks and adverse effects for patients with rheumatoid arthritis.

Table 1: Details of gender distribution in rheumatoid arthritis.

Gender distribution	No. of patient	%
Male	27	32.96
Female	55	67.07
Total	82	100

Table 2: Details of age distribution of rheumatoid arthritis patient.

Age distribution (years)	No. of patient	%
20-35	00	0.00
36-50	04	4.87
51-65	73	89.02
66-80	5	6.09
Total	82	100

Table 3: Details of route of administration of drugs in rheumatoid arthritis.

Route	Drugs	%
Oral	466	95.29
Injectable	17	03.47
Topical	6	01.22
Total	489	100

Table 4: Details of risk factors for rheumatoid arthritis.

Risk factors	No. of patient (n=82)	%
Family history	37	45.12
Old age	32	39.02
Obesity	12	14.63

Table 5: Details of class of NSAIDS prescribed in rheumatoid arthritis.

NSAIDS	Drug	No. prescription (n=132)	%
Preferential cox-2 inhibitors	Diclofenac	44	33.33
	Aceclofenac	40	30.30
	Nimesulide	17	12.08
Propionic acid derivatives	Ibuprofen	5	03.78
Enolic acid derivatives	Piroxicam	5	03.78
Acetaminophen	Paracetamol	21	15.90

Table 6: Details of DMARDS in rheumatoid arthritis.

DMARDS	Drugs	No. of prescriptions (n=82)	%
Monotherapy	Methotrexate	19	23.17
	Hydroxy chloroquine	08	09.75
	Sulfasalazine	06	07.31
Combined therapy	DMARDS+DMARDS	49	59.75

Table 7: Details of combination therapy.

	Combination therapy	No. of prescription	%
rheumatoid arthritis (n=82)	Aceclofenac +paracetamol	11	13.41
	Diclofenac +paracetamol	8	09.75
	Tramadol+paracetomol	3	03.65
	DMARDS+DMARDS	49	59.75
	Calcium+vit D3	22	26.82
	Multivitamins	48	58.53

Table 8: Adverse drug reaction with usage of NSAIDS.

Adverse drug reaction		Symptoms	No. of prescription	%
Rheumatoid arthritis (n=82)	Total=18 (21.95 %)	Gastric discomfort	10	12.19
		Abdominal pain	3	03.65
		Nausea	1	01.21
		Vomiting	1	01.21
		Skin rashes	2	02.43
		Loose stools	0	0
		Dizziness	1	01.21

DISCUSSION

The observed trends in the demographics, treatment patterns, and associated risks in patients with rheumatoid arthritis (RA) offer important considerations for rational therapy and future treatment approaches.

Gender distribution and age factors

Given the higher prevalence of RA in females and in the 51-65 age group, healthcare providers should be vigilant in screening and diagnosing RA in this demographic. Early detection and intervention can help mitigate disease progression and improve long-term outcomes.[9,10]

Drug selection and administration route

NSAIDs are the most commonly prescribed drugs for RA, indicating their importance in managing symptoms such as pain and inflammation. However, the high prevalence of adverse reactions with NSAIDs, especially gastric discomfort and abdominal pain, underscores the need for careful monitoring and consideration of alternative therapies, particularly in patients with gastrointestinal sensitivities. Furthermore, the preference for oral administration highlights the importance of patient convenience and compliance in treatment adherence.[11]

Risk factor management

Family history and old age are significant risk factors for RA. Identifying individuals with a family history of RA or those within the higher age brackets can aid in early intervention and personalized treatment plans. Moreover, addressing modifiable risk factors such as smoking and obesity can potentially reduce the incidence and severity of RA.[12]

DMARDs and combination therapy

The preference for DMARDs, particularly in combination therapy, signifies their efficacy in modifying the course of RA and preventing joint damage. Healthcare providers should prioritize the early initiation of DMARD therapy, tailored to individual patient profiles and disease severity. Additionally, the combination of aceclofenac and paracetamol may offer a complementary therapeutic option for RA patients with specific symptom profiles.[13]

Future Directions The observed trends in drug utilization and adverse reactions underscore the need for further research into novel therapeutic modalities for RA. Future studies should focus on the development of targeted therapies with improved efficacy and safety profiles, as well as on precision medicine approaches to tailor treatment strategies based on individual patient characteristics and disease biomarkers.[14] a holistic approach to RA management should encompass early diagnosis, personalized treatment strategies, and ongoing monitoring to optimize outcomes and enhance patient quality of life. Collaboration between healthcare providers, researchers, and patients will be essential in advancing the field of rheumatoid arthritis therapeutics.[15]

Despite the valuable insights provided, this study has certain limitations. First, the data was collected from a single healthcare facility, which may limit the generalizability of the findings to a broader population. The sample size, although adequate, could have been larger to increase the statistical power of the study. Furthermore, the study primarily focused on the medication regimens and adherence, without assessing the broader psychosocial factors that may influence treatment outcomes. Future studies should aim to incorporate a more diverse patient population, a broader array of influencing factors, and

multicentre data to enhance the robustness and applicability of the findings.

CONCLUSION

In conclusion, the analysis of data from 510 patients diagnosed with rheumatoid arthritis (RA) reveals significant insights into the demographics, treatment patterns, and associated risks of the disease. Females are predominantly affected by RA, with the majority of patients falling within the 51-65 age group. NSAIDs are the most commonly prescribed drugs for RA management, although they are associated with higher rates of adverse reactions such as gastric discomfort and abdominal pain.

Family history and old age are identified as significant risk factors for RA, highlighting the importance of early detection and personalized treatment approaches. DMARDs, particularly in combination therapy, are preferred for modifying the course of RA and preventing joint damage. Looking ahead, future research should focus on developing targeted therapies with improved efficacy and safety profiles, as well as on precision medicine approaches tailored to individual patient characteristics. Overall, a comprehensive approach to RA management that encompasses early diagnosis, personalized treatment strategies, and ongoing monitoring is crucial for optimizing patient outcomes and enhancing quality of life.

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