

Assessment of Clinical Feature, Risk Factors, Treatment Pattern and Quality of Life of Arthritis Patients Attending A Tertiary Care Hospital, Gujarat

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Abstract

Background: Rheumatoid arthritis is a chronic autoimmune inflammatory disease associated with high morbidity and premature death.

Methodology: A cross sectional study was carried out to access the clinical features, risk factors and treatment pattern of arthritis patients at a tertiary care hospital. Quality of life of patients was measured using WHOQOL-brief questionnaire.

Result: Among 100 arthritis patients (37% males and 63% females), majority were aged between 51 and 70 years (76%) and living in rural areas (80%). Most part of study participants had low level of education and poor economic conditions. 62% of participants had overweight and 55% of participants had family history of arthritis. Study participants were diagnosed with osteoarthritis (60%), rheumatoid arthritis (28%) and gouty arthritis (12%). Majority of patients were diagnosed using X-rays (84%). Prominent clinical features like joint pain (95%), peripheral neuropathy (84%), morning stiffness (80%) and inflammation (56%) were observed along with regular pain. Co-morbid conditions like hypertension (37%), diabetes (22%), and COVID-19 (14%) were highly observed in the study patients. Moreover, physical domain of life of the patients was most affected by arthritis. NSAIDs (53%) were reported as highly prescribed drugs followed by corticosteroids (10%), immunosuppressant (9%), uric acid reducers (4%) and DMARDs (2%) among all type of arthritis patients.

Conclusion: Patient counseling, control of risk factors, appropriate treatment based on severity can reduce burden of arthritis and improve quality of life of patients. Conclusion: Patient counseling, control of risk factors, appropriate treatment based on severity can reduce burden of arthritis and improve quality of life of patients.

Keywords: Osteoarthritis; Rheumatoid Arthritis; Gouty Arthritis; Joint Pain; Co-Morbid Conditions; X-Rays; Non Steroid Anti-Inflammatory Drugs

Abbreviations

BMI: Basal Metabolic Index; RA: Rheumatoid Arthritis; OA: Osteoarthritis; GA: Gouty Arthritis; NSAIDs: Nonsteroidal

Anti-Inflammatory Drugs; DMARDs: Disease Modifying Antirheumatoid Drugs.

Introduction

Arthritis is a chronic inflammatory condition affecting *more than 350 million people* globally and a leading cause of disability [1]. An acute or persistent joint inflammation, pain, stiffness, reduced range of motion, and joint abnormalities, can be attributed to arthritis. Arthritis affects people of almost all ages, however after 40 years of age for women and 50 years of age for males, the prevalence rises significantly. There are various forms of arthritis, and each has a unique course of treatment. Osteoarthritis is a degenerative joint condition commonly observed in knees, hips, spine and hands. About 528 million people worldwide were living with a osteoarthritis from which 73% of people were older than 55 years, and 60% were female. Prevalence rate of osteoarthritis is ranging from 22% to 39% in India. Many factors like a history of joint injury or overuse, older age and being overweight, female gender may contribute to developing osteoarthritis. 344 million people living with osteoarthritis experience severity levels (moderate or severe) that could benefit from rehabilitation [2,3]. Rheumatoid arthritis is the most prevalent kind of autoimmune inflammatory arthritis with an estimated prevalence was 17.6 million globally in 2000 and 0.28-0.7% in India [3,4]. Female gender, family history, overweight, and smoking are major risk factors while environmental bacterial or viral infections may trigger this idiopathic condition [1]. As the disease progresses, the inflamed synovium invades and damages the cartilage and bone of the joint. The potential of the synovial inflammation to cause cartilage destruction is the hallmark of the disease. Early diagnosis and following a treatment plan like exercise, assistive technologies, medicines, or joint replacement surgery is the best way to slow the disease and optimize function. Gout is a type of inflammatory arthritis associated with hyperuricemia and deposition of monosodium urate crystals in and around the joints. Prevalence of gout ranges from less than 1% to 6.8% worldwide with greater in men, elders, and in some ethnic groups. Many gout risk factors exist, including obesity, dietary factors and comorbid conditions [5]. Comorbidities are often seen as a serious problem for arthritis patients, particularly as they may have an impact on the patients' overall progress and long-term prognosis. Quantitative information regarding the frequency of comorbidities in arthritis patients is currently scarce due to small number of published studies [6,7]. Based on the existence of a few well-known risk factors for the development of arthritis, at-risk populations have been identified but the risk criteria that are utilized to identify at-risk participants for clinical trials also vary. Pharmacological and non-pharmacological (or conservative) therapies are typically combined for the management of arthritis to reduce discomfort and enhance quality of life of patients [8]. Inappropriately treated arthritis usually results in

persistent joint pain, irreversible deformities, and functional disability, leading to poor quality of life.

Based on this, a study on arthritis patients were carried out to access the clinical features, diagnosis, risk factors, comorbidities, treatment pattern and quality of life of patients in a tertiary care hospital of Anand, Gujarat, India.

Methodology

This cross-sectional study was conducted in outpatients at a Cambay General Hospital, Khambhat, Gujarat. The sample size was decided by using the prevalence rate of individual types of arthritis in India. After the approval from the Institutional review board (IRB/IPCRC/23/6), data was collected in between January 2024 to April 2024. According to patient's consent for the response, a total of 100 participants were included in the systematic sampling. Data of demographics, clinical features, diagnostic tests, risk factors, comorbid conditions, and treatment pattern were recorded from the case records in a predesigned questionnaire. After informed consent, data of quality of life of patients were collected by face to face/telephonic interview in a WHOQOL-brief questionnaire [9]. The WHOQOL-brief questionnaire covers 26 questions in four domains related physical health (WHOPH), psychological health (WHOPSY), social relationship (WHOSR) and environmental health (WHOENV) of patients. Each item is measured on a Likert scale ranging from 1-5 (1: not at all, 2: a little, 3: a moderate amount, 4: very much, 5: an extreme amount). Raw scores obtained from each of the four dimensions are transformed into WHOQOL-100 standard scores by means of a key provided. The four domain scores are fashioned in a positive manner that is higher scores denote better QOL. Domain score is calculated by mean score of items within every domain. The total score was calculated by summing all the domain scores. Descriptive statistic was calculated using frequencies and percentages.

Results

Out of total 100 participants (63% females and 37% males), majority of them belonged to the age group between 51 to 70 years with the average age of 60.94 years. Participants had varying levels of education and only few participants have higher level education while some were totally illiterate. Most part of the participants have high (62%) basal metabolic index (BMI). Based on their occupation, participants were classified as house makers (58%), salaried employees (20%), farmers (16%), and businessmen (3%). 20% of patients had smoking, tobacco and alcohol addiction (Table 1).

Variables	Categories	Frequency	Percentage
Gender	Male	37	37%
	Female	63	63%
Age group (years)	41-50	13	13%
	51-60	37	37%
	61-70	36	36%
	71-80	13	13%
Residence	Urban	20	20%
	Rural	80	80%
Education	No formal schooling	20	20%
	Up to 10 th standard	49	49%
	Up to 12 th standard	14	14%
	Graduate	16	16%
	Postgraduate	1	1%
Occupation	Businessman	3	3%
	Student	0	0%
	Salaried employee	20	20%
	House makers	58	58%
	Farmer	16	16%
	Other	3	3%
Socio-economic status	Upper class	0	0%
	Upper middle class	0	0%
	Middle class	15	15%
	Lower middle	46	46%
	Lower class	39	39%
BMI	Underweight	1	1%
	Normal	33	33%
	Overweight	39	39%
	Obese class 1	18	18%
	Obese class 2	5	5%
Addiction	Smoking	5	5%
	Tobacco	12	12%
	Alcohol	3	3%
	None	80	80%

Table 1: Demographic data of the arthritis participants.

Out of 100 arthritis cases, 60% with osteoarthritis, 28% rheumatoid arthritis and 12% gouty arthritis were observed. Data of clinical features, diagnostic tests, pain areas and pain severity of patients are shown in Table 2. Clinical features were varied according to types, but majorities had morning stiffness (80%), joint pain (95%), and peripheral neuropathy

(84%). The pain severity was detected from no pain to very severe pain using VAS scale and most patients experienced pain in back, neck and knee. Diagnosis of majority participants was done using X-rays and body fluid detection. 70% of patients had 40-60% pain relief by medications.

Variable	Category	Frequency	Percentage
Types of arthritis	Osteoarthritis	60	60
	Rheumatoid arthritis	28	28
	Gouty arthritis	12	12
Clinical features	Morning stiffness	80	19%
	Joint deformity	15	3%
	Joint pain	95	20%
	Peripheral neuropathy	84	95%
	Back pain	72	7%
	Muscle weakness	30	7%
	Inflammation	56	13%
Diagnosis test			
Radiographic test	X-ray	84	84%
	MRI	13	13%
Body fluid test	Synovial fluid test	26	26%
	RA factor	54	54%
	Uric acid analysis	20	20%
Pain	Regular	70	70%
	Irregular	30	30%
Pain severity	Mild pain	21	21%
	Moderate pain	31	31%
	Severe pain	13	13%
	Very severe pain	30	30%
	Worst pain	5	5%
Area of pain	Shoulder	19	19%
	Back	71	71%
	Elbow	10	10%
	Wrist	4	4%
	Finger	4	4%
	Neck	90	90%
	Knee	70	70%
	Ankle	30	30%
Pain relief by medication	30% or less	27	27%
	40%-60%	70	70%
	70%-100%	3	3%

Table 2: Distribution of clinical features and diagnosis of arthritis patients.

Comorbidities and risk factors of the participants are shown in Table 3. Major comorbidities observed in arthritis patients were hypertension (43%), gastrointestinal diseases (32%) and diabetes (26%). Major risk factors observed among arthritis patients were old age (46%), family history (55%), obesity (62%), female gender (63%), and COVID-19 history (23%).

Variables	Categories	Frequency	Percentage
Comorbid conditions	Cardiovascular disease	3	3%
	Hypertension	43	43%
	Thyroid disease	6	6%
	Lung disease	2	2%
	Diabetes	26	26%
	GI tract disease	32	32%
	Uveitis	7	7%
	Kidney disease	5	5%
	Risk factors	Old age	46
Family history		55	55%
Obesity		62	62%
Female gender		63	63%
Trauma		3	3%
Repetitive knee trauma		9	9%
Muscle weakness		15	15%
Joint laxative		10	10%
Mechanical forces		17	17%
Squatting		13	13%
Meniscal injuries		5	5%
Smoking (Tobacco)		17	17%
Gum disease		4	4%
COVID-19 history	23	23%	

Table 3: Distribution of comorbidities and risk factors of arthritis patients.

Total drugs prescribed in Osteoarthritis (OA), Rheumatoid arthritis (RA) and Gouty arthritis (GA) participants are shown in Table 4. Among the prescribed drugs, 53% nonsteroidal anti-inflammatory drugs (NSAIDs), 11% disease modifying antirheumatoid drugs (DMARDs), 10% corticosteroids, 4% uric acid reducers, and 22% other drugs were observed. In

addition to this, 7% patients had surgery, 93% patients had exercise therapy and 64% patients had calcium and vitamins dietary supplements. Along with allopathic medicine

participants were using ayurvedic (90%), homeopathic (2%) and other therapies (8%).

(1) NSAIDs - 53%	
OA	Aceclofenac, Aspirin, Celecoxib, Diclofenac, Diclofenac Gel, Etoricoxib, Flexon, Ibuprofen, Indomethacin, Meloxicam, Naproxen, Paracetamol, Serratiopeptidase
RA	Aceclofenac, Aspirin, Celecoxib, Diclofenac, Diclofenac Gel, Etoricoxib, Ibuprofen, Indomethacin, Lornoxicam, Meloxicam, Naproxen, Paracetamol, Piroxicam, Serratiopeptidase
GA	Aceclofenac, Celecoxib, Diclofenac Ibuprofen, Indomethacin, Naproxen, Paracetamol, Serratiopeptidase
(2) DMARDs - 11%	
OA	Cyclophosphamide, Hydroxychloroquine, Methotrexate, Sulfasalazine, Leflunomide
RA	Cyclophosphamide, Cyclosporine, Hydroxychloroquine, Methotrexate, Sulfasalazine, Leflunomide
(3) Corticosteroids - 10%	
OA	Prednisone, Prednisolone, Methylprednisolone, Hydrocortisone, Cortisone
RA	Prednisone, Hydrocortisone
GA	Prednisone, Prednisolone
(4) Uric acid Reducer - 4%	
GA	Allopurinol
(5) Others - 22%	
OA	Cetirizine-HCl, Acetaminophen, Cimetidine, Dexlamsprazole, Diazepam, Domperidone, Dulxentin, Ofloxacin, Omeprazole, Pantoprazole, Rabeprazole, Ranitidine, Tramadol
RA	Cetirizine-HCl, Acetaminophen, Cimetidine, Dexlamsprazole, Diazepam Domperidone, Dulxentin, Ofloxacin, Omeprazole, Pantoprazole Rabeprazole, Ranitidine, Tramadol
GA	Methadone, Omeprazole

Table 4: Distribution of treatment pattern of arthritis patients.

WHOQOL-BREF Scales is a valid measure to identify quality of life of arthritis patients in four dimensions. Higher the score indicate better quality of life in that dimension. As shown

in Table 5. Physical dimension score is lowest followed by psychological, social and environmental dimension.

Variables	Categories	N	Mean	Standard deviation
WHOQOL-	WHOPH(Physical)	100	48.69	10.01
BREFScales	WHOPSY(Psychological)	100	49.44	12.11
	WHOSR(Social)	100	55.19	16.98
	WHOENV(Environmental)	100	53.09	12.27
	Total		206.4	11.25

Table 5: Distribution of quality of life among arthritis patients.

Discussion

In the present study, females (63%) were more affected than males (37%) relating to other reported studies [10-

14]. Most of the arthritis patients were of old age (51-70 years) and from the rural area, which was similar to other research works from India [12-15]. Low level of education of patients might reduce awareness [16] and low income of

the majority of the participants might reduce preference to seek healthcare to avoid financial hardship [13]. The reason a housewife had a high prevalence of arthritis, might be due to improper ergonomics while doing household chores. On the other hand, salaried employees and farmers had high prevalence of arthritis might be due to stressful life and high physical work [16]. In the present study, higher number of osteoarthritis patients was observed followed by rheumatoid arthritis and gouty arthritis, which was similar to a study from the Gujarat [17]. In the present study, several comorbidities (hypertension, diabetes, gastrointestinal diseases, lung diseases, kidney diseases, uveitis, thyroid, and cardiovascular diseases) were observed with the arthritis patients correlating with other studies [10,12] and increased risk of insufficient rheumatologically care. Risk factors such as older age, female gender, socioeconomic status, obesity, alcohol or tobacco addiction habits, family history of arthritis, mechanical injuries and COVID-19 history observed in the arthritis patients are matched up with the other researches [15,17-20]. Fiber diet taken by some patients were protective for rheumatoid arthritis [20] while protein diet serve as a risk factor for gouty arthritis [21].

Symptoms of arthritis are varied with different types of arthritis. Line up with the other researches [21,22], majority of patients suffered from joint pain, morning stiffness, peripheral neuropathy, back pain, inflammation, muscle weakness, and joint deformity in the present study. More than half the number of individuals suffered from moderate pain and very severe pain. Furthermore, 70% of individuals were feeling pain regularly in their day-to-day lives, whereas 30% of individuals were feeling irregular pain. In this survey majority numbers of individuals got 40%-60% relief by medication. Diagnosis of arthritis was done by X-rays in majority of patients.

WHOQOL-BREF is a tool used to measure the quality of life of arthritis patients in physical, mental, social, and environmental dimensions [9]. This survey shows that arthritis affect quality of life in all aspects, physical and mental dimensions were more affected than social and environmental similar to the results of other research [23,24]. Pain severity and comorbidities affect the quality of life.

For the treatment of arthritis, patients were typically prescribed NSAIDs for pain relief [19] in all type of arthritis. DMARDs like Methotrexate, Hydroxychloroquine, Cyclophosphamide, Sulfasalazine and Leflunomide were prescribed for osteoarthritis and rheumatoid arthritis. Allopurinol was most prescribed drug in gouty arthritis and Prednisolone was most used corticosteroid in all type of arthritis patients [25]. Other treatment options adopted were surgery, exercise and dietary supplements. Most patients

were also included ayurvedic medicine along with allopathic medicine for cure of the arthritis disease condition.

Conclusion

In the present study, arthritis was observed as a particular painful condition majorly observed in the female and in the age group of 51 to 70 years. Majority of participants live in rural areas and some of had very low literacy rate might lead to poor knowledge and awareness about the disease. Obesity, family history, and comorbidities like diabetes and hypertension were most prevalent risk factors observed in the present study. Predominantly osteoarthritis followed by rheumatic arthritis and gouty arthritis were observed in the present study. Patients had prominent clinical features like joint pain, peripheral neuropathy, morning stiffness and inflammation were observed with moderate quality of life. In addition to mostly prescribed pain control medicines, patients were also adopted physical therapy, ayurvedic and other system remedies. Proper counseling, control of modifiable risk factors with life style modification and proper treatment is required to enhance quality of life of arthritis patients.

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