“The pattern of prior drug usage, level of disease activity at presentation to rheumatology clinic in rural patient of Rheumatoid Arthritis- one year observational study from Rheumatology clinic at KLES Dr.Prabhakar Kore Hospital and MRC, Belagavi.”

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ACCEPTANCE LETTER

The softcopy of thesis entitled: **"THE PATTERN OF PRIOR DRUG USAGE, LEVEL OF DISEASE ACTIVITY AT PRESENTATION TO RHEUMATOLOGY CLINIC IN RURAL PATIENT OF RHEUMATOID ARTHRITIS- ONE YEAR OBSERVATIONAL STUDY FROM RHEUMATOLOGY CLINIC AT KLES DR. PRABHAKAR KORE HOSPITAL AND MRC, BELAGAVI"** has been submitted for Anti-Plagiarism check through Turnitin software. The scan has been carried out and the scanned output reveals a match percentage of **09%** which is within the acceptable limits of **10%** as per the guidelines given by UGC.

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ABBREVIATIONS

Glossary	Abbreviations
ACR	American College of Rheumatology
ANA	Antinuclear Antibodies
ANTI - CCP	Anti-cyclic Citrullinated Peptide
ATIC	5-aminoimidazole-4-carboxamide ribonucleotide-transformylase
CAM	Complementary and alternative medicine
C-ANCA	Anti-Cytoplasmic Antibodies
CDAI	Clinical Disease Activity Index
COPCORD	Community-oriented program for control of rheumatic disease survey
CRP	c-Reactive Protein
CsDMARDs	Conventional Disease modifying anti-rheumatic drugs
DMARDs	Disease modifying anti-rheumatic drugs
DNA	Deoxyribonucleic Acid
EBV	Epstein-Barr virus
ESR	Erythrocyte Sedimentation Rate
EULAR	European League Against Rheumatism
GCs	Glucocorticoids
Hb	Hemoglobin
HCQ	Hydroxychloroquine
HLA	Human Leukocyte Antigen
IL-6	Interleukin 6 (IL-6
ILs	Interlukins
LFN	Leflunomide
M	Millions
MHC	Major Histocompatibility Complex
MTx	Methotrexate
NSAIDs	Non-Steroidal Anti-inflammatory Drugs

RA	Rheumatoid Arthritis
RF	Rheumatoid Factor
RNA	Ribonucleic Acid
SSZ	Sulfasalazine
TC	Total Count
TLR9	Toll-like receptor TLR9
TNF	Tumour Necrosis Factor
VAS	Visual Analogue Scale
WHO	World Health Organization
WHO-ILAR COPCORD	World Health Organization-International League of Association for Rheumatology

ABSTRACT

Background: Rheumatoid arthritis (RA) is a chronic, systemic inflammatory disease, primarily affecting joints and other organs. RA, associated with significant morbidity, mortality adds to the total health care burden on the country. RA patients require lifelong medications with routine monitoring of disease activity as well as side effects to medications.

Objectives: The present study evaluated the disease activity at presentation in patients with RA, prior pattern of drug usage with emphasis on dose of DMARDs, and time between symptom onset and diagnosis delay in RA patients.

Methods and Materials: This prospective observational study among patients who attended the OPD of rheumatology clinic inDr.Prabhakar Kore Hospital and MRC, Belagavi. Patients > 18 years were included in the study. Demographic, disease characteristics, and treatment details were collected from medical records and a set of questionnaires Data were analysed using R software.

Results: The study involved 100 selected participants with female to male ratio of 3.54:1 and mean age of 47.79±13.51years. Majority of the patients were illiterate, as it was conducted in a rural setting. Evaluation of delay between disease onset and presentation to rheumatology clinic demonstrated that majority of the subjects (58%) presented late (i.e >24months) to rheumatology clinic. Majority of female patients (n=48, 61.53%) presented late to rheumatology clinic as compared to 10 male patients (45.45%). Among 58 patients who presented to clinic after 24 months from the onset of disease, 1 (1.72%) patient had low CDAI 13(22.41%) had moderate CDAI and

44(75.86%) had high CDAI. Majority of the subjects were treated by orthopedician (29%), followed by family physician (25%), ayurevedic practitioner (21%), rheumatologist (12%), and internal medicine practitioner (3%). Among 71 high CDAI patients, 24(33.80%), (1.41%), 21(29.58%), 15(21.13%) and 10(14.09%) patients were seeking treatment from orthopedic practitioners, rheumatologist, family physician, ayurvedic practitioners and homeopathic practitioners respectively. Patients treated by other practitioners had higher patients global VAS and the difference in patients global VAS with respect to the prior caregivers was found to be statistically significant. Among the patients who were not on DMARDs, 28% of the patients received alternative medicine (ayurvedic or homeopathic treatment) prior to first visit. Among 28 patients who received alternative medicine treatment, 7(25%) and 21(75%) patients had moderate CDAI and high CDAI respectively. The diagnosis of RA in majority of patients was made by rheumatologist (40%), 29% by orthopedician, 13% by family physician, 12% by ayurvedic practitioners, 4% by homeopathic practitioners and 2% by internal medicine practitioners. Out of 55% of patients those who were on MTX, 40% received suboptimum dose of MTX i.e <12.5mg, only 15% of the patients received optimum dose of MTX i.e >12.5mg. Chi-square performed for the distribution of patients based on CDAI classification and MTX treatment revealed that, with different doses of MTX, there was a significant change in CDAI activities. CDAI was more for patients who were on suboptimum dose of MTX and those who never used MTX. This difference was statistically significant (P=0.0001).

Conclusion: Majority of the subjects received suboptimal / inappropriate treatment before consulting a rheumatologist. Most patients consulted a rheumatologist at a late stage of the disease after developing deformities. More facilities and rheumatology care are needed for the timely referral and proper management of this disease.

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INTRODUCTION

The course of rheumatoid arthritis (RA) progression is unpredictable and it can cause severe deformities and inability to perform routine tasks (Guo et al., 2018).[1]The disease is marked by reduced functional ability, episodes of exacerbation, remission of disease activity, and increased dependency on others(Young et al., 2000).[2] RA patients may require lifelong treatment and it focuses on relieving symptoms inflammation, and joint damage, and maintaining or improving functional ability and psychosocial functioning. Lifestyle changes like diet, exercise, taking medication daily are necessary to achieve continuing functionality of joints (Veehof 2008).[3] Prescribing medications for RA depends on the disease activity and severity, cost of treatment, access to care, expertise of clinician, patient and physician preferences and adherence to medication (Joplin et al., 2015).[4]

In India, healthcare systems in rural settings have inadequate resources to provide support to individuals with chronic diseases. Poor self-management with drug therapy exacerbates the burden of RA. Most of the RA patients in the rural regions of the country consult untrained or traditional practitioners to get instant relief and they may approach a rheumatologist only after the disease progresses to later stages (Pati et al., 2019).[5]

Increased disparity in access to rheumatology care between urban and rural areas has been observed. The standard of rheumatology care in rural settings of India is at the rudimentary level. In addition, the diverse perspectives of practitioners such as allopathic, homeopathic, and quacks are adversely affecting the prompt diagnosis and treatment of subjects residing in such areas. However, there are very limited

studies exploring whether patient residence in rural versus urban regions have an impact on patient management from India.

AIMS AND OBJECTIVES

- To study the level of disease activity at presentation in patients with rheumatoid arthritis.
- To study the prior pattern of drug usage with emphasis on dose of DMARDs used in RA patients.
- To find out the time delay between symptom onset and diagnosis of RA.

REVIEW OF LITERATURE

Prevalence and burden of RA

Rheumatoid arthritis is the most common type of autoimmune arthritis. The disease occurs predominantly in middle-aged subjects (25 to 45yrs), with more prevalence in females than males (4:1).[6] The prevalence of the disease globally is estimated to be around 0.3 to 0.1%, with significant during the most productive years of the adulthood (WHO, 2020).[7] It generally affects the multiple joints of both the sides of the body and has variable progression patterns. The associated disease sequela include inflammatory and destructive events such as pannus formation, synovial hyperplasia, joint malformation, and cartilage and bone erosions (Gönen E et al., 2016).[8] The disease primarily affects the mobility and physical function and mobility of the RA patients, which in turn results in substantial short- and long-term morbidity, and permanent joint damage (Scott et al., 2010).[9]

A 2010 study by Cross et al. has reported that RA is the 42nd highest contributor to the global disability, and the disability-adjusted life years had increased from 3.3 million (95% CI 2.6 - 4.1 M) in 1990 to 4.8 million (95% CI 3.7 M - 6.1 M) in 2010.[10]Scott et al (2010) have reported that the disease is three times more frequent in females and it affects 0.5-1% of adults in developed countries (Scott et al., 2010)[9]. As per the reports of World Health Organization-International League of Associations for Rheumatology and community oriented program for control of RA (WHO-ILAR COPCORD) survey in the year 2004, the corresponding prevalence noted in urban and rural population of India were 0.5% and 0.55% (Chopra et al., 2008).[11] The prevalence of RA in India is estimated to be around 0.5- 1% among adult population.

Malaviya et al. have reported a prevalence of RA 0.75% in adults (Malaviya et al., 1993).[12]

The community-oriented program for control of rheumatic diseases survey (COPCORD) has noted that the pooled age-, sex-adjusted prevalence of RA was 0.34%, which may account for probably 5 million patients among 1.2 billion population. The researchers also underscored the need for addressing the prevalence at national level considering the extremely high burden of the disease (Chopra et al., 2012).[13]

Role of genetic and environmental factors

RA is an autoimmune disease of unknown etiology, and the interaction of genetic and environmental factors play a vital role in the development of disease in susceptible individuals. Literature findings show that having first degree relative with RA is linked to 2 to 5-fold increased risk for developing the disease, particularly if the disease was severe or seropositive for rheumatoid factor. Hence, the clinical work-up for RA should include collecting the detailed history of close relatives (Frisell et al., 2016).[14] However, RA is genetically heterogeneous and polygenic disease and non-inherited factors play a paramount role in its development.

Various combinations of genetic polymorphisms and genetic loci have been linked to increased susceptibility to develop the disease. Certain genes are responsible for the disease severity rather than development. The major histocompatibility complex (MHC), a large genetic region on chromosome 6, has been consistently linked to RA (Matzaraki et al., 2017).[15] Human leukocyte antigen (HLA) genes constitute a large part of this complex, and are divided into class I (HLA-A, B and C) and class II (HLA-DR, DQ and DP) genes. The proteins encoded by these genes are

integral in determining a person's immune response to antigenic stimuli. HLA class II genes, especially HLA-DR4 and HLA-DRβ1, have been strongly associated with RA.

Other genes that have also been linked to the disease etiology of RA include genes encoding tumor necrosis factor (TNF)-α, interleukins (IL) and the protein tyrosine phosphatase non-receptor type 22 (Farrugia et al.,2016), (Guo et al., 2018).[1,16]

The initiation of the disease process in a susceptible individual could be attributed a complex interplay between genetic and environmental factors. Non-inherited factors such as smoking and microbial infections due to Parvovirus B19, Epstein-Barr virus (EBV), *Escherichia coli,Proteus mirabilis* and *Mycobacterium tuberculosis* have been implicated as possible triggers for RA. Antigen mimicry exhibited by certain viruses and bacterial agents to autoantigen and infection induces an immune response causing cross-reaction with the autoantigen (Li et al., 2013).[17]

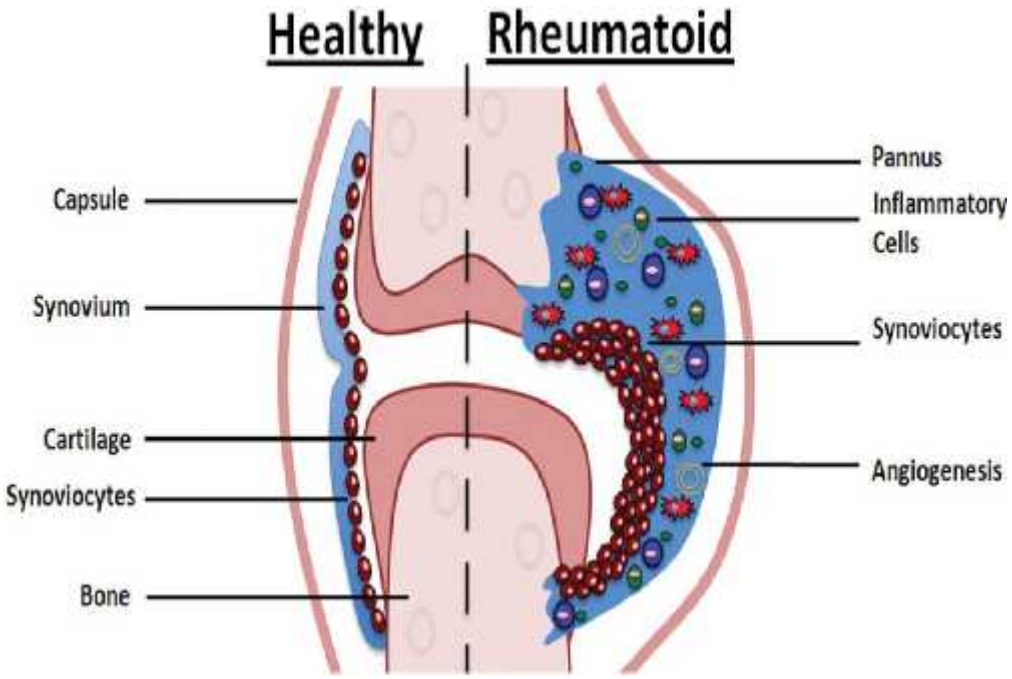
Disease pathogenesis

Rheumatoid arthritis (RA), a systemic progressive destructive joint disease, shows increased risk for co-morbidity and various extra-articular manifestations. The pathogenesis of RA comprises of activation of innate immunity (macrophages, monocytes, neutrophils, and fibroblastic synoviocytes) and the adaptive immune system involving T- and B-lymphocytes. Etiology and the pathogenesis of RA are multifactorial and mainly include genetic susceptibility and environmental triggers. The environmental factors include cigarette smoke, disturbances of intestinal, lung, and oral microbiota, industrial pollutants like silica crystals, and some specific bacterial and viral infectious agents (Branimir et al., 2014).[18]Though the exact mechanisms are not clearly understood, development of RA in susceptible individuals

leads to synovial hyperplasia and bone destruction. Alteration in adaptive and innate immune responses, and subsequent generation of autoantibodies targeting diverse molecules, including modified self-epitopes, are noted during the initial stages of the disease. Amplification of the chronic inflammatory state is noted in the advanced stages due to the action of innate (e.g. macrophages, dendritic cells, and neutrophils) and adaptive immune cells (e.g. B and T cells) (Calabresi et al., 2018).[19]

Within the synovium, macrophages and lymphocytes produce pro-inflammatory cytokines and chemokines (e.g., TNF-alpha, granulocyte-macrophage colony-stimulating factor, various ILs, interferon-gamma). The release of inflammatory mediators such as cytokines, chemokines, and metalloproteases results in systemic and joint manifestations of RA, including cartilage and bone destruction (Fig. 1).[21]

Fig. 1: Pathogenesis of RA



Reference: *Hawtree S, Muthana M, Wilson AG. The role of histone deacetylases in rheumatoid arthritis fibroblast-like synoviocytes. 2013 May; 41 (3): 783-788.*

Diagnosing RA

The diagnosis of RA may depend on clinical signs, symptoms, and laboratory markers. Detailed history collection and physical examination are conducted in cases with observable symptoms such as pain on applying pressure, swelling, skin rashes or any other relevant features. The most common clinical investigations conducted are total count (TC), hemoglobin (Hb%), erythrocyte sedimentation rate (ESR), c-reactive protein (CRP), anti-cyclic citrullinated peptide (CCP), rheumatoid factor (RF), urine routine examination, and X-ray of the affected joints.(Wasserman 2011**).**[21] Elevated anti-CCP is a strong pointer towards diagnosis of RA. Elevated ESR and CRP levels assist in measuring the levels of inflammation. Positive RF is noted in about 5% of the normal population, hence mere presence of RF cannot be considered as a criterion for the diagnosis (Jennifer 2020).[22] Depending upon the associated clinical features, other specialized tests like anti-cytoplasmic antibodies (C-ANCA), antinuclear antibodies (ANA), and anti-dsDNA tests are also recommended to rule out other autoimmune diseases, which may present with arthritis.

The 2010 ACR/EULAR classification criteria (Table 1) focuses on diagnosing RA early in the disease course. Patients are classified as having RA based on the number of joints involved, disease duration, raised inflammatory markers and positive autoantibodies namely RF and anti-CCP (Aletaha et al., 2010).[23]

Table 1: 2010 ACR/EULAR Rheumatoid Arthritis Classification Criteria

A score of at least 6/10 is needed for classification of a patient as having definite RA	Score
1. Joint involvement	
1 large joint	0
2 – 10 large joints	1
1 – 3 small joints (with or without involvement of large joints)	2
4 – 10 small joints (with or without involvement of large joints)	3
>10 joints (at least 1 small joint)	5
2. Serology (at least 1 test result is needed for classification)	
Negative RF *and* negative ACPA	0
Low-positive RF *or* low-positive ACPA	2
High-positive RF *or* high-positive ACPA	3
3. Acute-phase reactants (at least 1 test result is needed for classification)	
Normal CRP *and* normal ESR	0
Abnormal CRP *or* abnormal ESR	1
4. Duration of symptoms	
<6 weeks	0
≥6 weeks	1

Source: Aletaha et al. 2010 Rheumatoid arthritis classification criteria: an American College of Rheumatology/European League against Rheumatism collaborative initiative. Arthritis Rheum. 2010 Sep; 62(9):2569–81.

Managing RA

The management of rheumatoid arthritis is focused on the following three domains.

- Reducing the pain and other disease-related symptoms
- Attaining a disease-free state or reduced disease activity
- Reducing or eliminating the damages caused by the arthritis

The use of various drug and non-drug modalities are intended to reduce the short-term (day-to-day basis) and long-term (deformity and disability) disease burden. Non-steroidal anti-inflammatory drugs (NSAIDs) are generally prescribed to reduce the pain.[24] Physical measures employed include heat and cold, ultrasonic massages, short-wave diathermy, and infrared heat. Disease-modifying drugs (DMARDs) such

as methotrexate and biologics help in reducing the need for NSAIDs (painkillers), inflammation, and the incidence/severity of deformities and disabilities(Benjamin et al., 2020).[25] Apart from the drug therapy, physiotherapy, appropriate splinting, and occupational therapy are adopted for long-term management to reduce disability and deformity (Kavuncu et al., 2004).[26]

The current objective of management of RA has moved from palliative pain management to treatment to cure or maintain a possibly minimum disease activity. A significant proportion of RA patients attain remission within a certain period of treatment (Ajeganova et al., 2017).[27]after achieving the remission, the clinician may decide on taper or discontinuation of DMARD.

Implementing the aforementioned approach of inducing remission and maintaining a low disease activity has triggered a debate among clinicians (Volkov et al., 2020).[28] the concept has influenced several aspects of various treatment protocols. The 2015 ACR recommendations advocate treat-to-target as the principle beyond the management of RA. The first recommendation of treat-to-target, published in 2010, has emphasized the need to achieve a state of remission or at least low disease activity (Smolen et al., 2016)**.**[29]

Pharmacologic drugs used in RA

The pharmacologic treatment for RA can be broadly classified into 4 classes:

1. Non-steroidal anti-Inflammatory drugs (NSAIDs)
2. Disease modifying anti-rheumatic drugs (DMARDs)
3. Glucocorticoids
4. Biologicals

Non-steroidal Anti-inflammatory Drugs (NSAIDs)

NSAIDs acts by inhibiting the synthesis of pro-inflammatory prostaglandins and they are primarily used for controlling inflammation, stiffness and pain. There are often used during early disease course and there is no literature evidence showing that these drugs may alter the natural course of the disease (Crofford et al., 2013).[30] The undesirable adverse effects of the drug such as renal and liver toxicity, gastropathy, and an increased risk of CVD should be closely monitored, especially in elderly patients (Wongrakpanich et al., 2018).[31]

Glucocorticoids (GCs)

Oral GCs are often prescribed as a combination of DMARDs during the early course of disease course to achieve rapid relief from inflammation and associated symptoms. They are also used as shorter courses of 20-15 mg/day tapering to 5 mg/day over period of 7-15 days. The receptor-glucocorticosteroid complex formed by the GCs affect the gene transcription by binding to the DNA site. This alteration of gene expression results in the suppression of the inflammatory process such as prevention of formation of arachidonic acid (Boumpas et al., 1993).[32] the administration of intra-articular GCs directly into joints is found to be effective for the treatment of flares. The side effects associated with low-dose glucocorticoids include cataract, osteoporosis and peptic ulceration (Hua et al., 2020).[33]

However, the long-term use of GCs should be avoided, as it is associated with elevated risk of adverse effects such as infections, osteoporosis, diabetes and hypertension (Den et al., 2011).[34]

DMARDs

The commonly used DMARDs for RA management include Methotrexate, Sulfasalazine (SSZ), Hydroxychloroquine (HCQ), Leflunomide, cyclosporine, Sodium aurothiomalate, Auranofin, Azathioprine, Mycophenolate mofetil and Cyclophosphamide. Each DMARD acts by interfering the critical pathways in the inflammatory cascade. Methotrexate is the most commonly used drug for the treatment of RA. It acts by competitively inhibiting the folate-dependent enzymes such as dihydrofolate reductase, thymidylate synthase, and 5-aminoimidazole-4-carboxamide ribonucleotide-transformylase (ATIC). It prevents the *de novo* purine and pyrimidine synthesis, which are essential for DNA and RNA synthesis.

Other medications belonging to this class acts by inhibiting proliferation or causing dysfunction of lymphocytes. Sulfasalazine confers its anti-inflammatory effects by preventing oxidative, nitrative and nitrosative damage. Leflunomide functions by inhibiting dihydroorotate dehydrogenase, causing the inhibition of pyrimidine synthesis and lymphocyte proliferation. Whereas, Hydroxychloroquine, a very mild immunomodulatory agent, acts by inhibiting intracellular toll-like receptor TLR9 (Benjamin et al., 2020).[25]

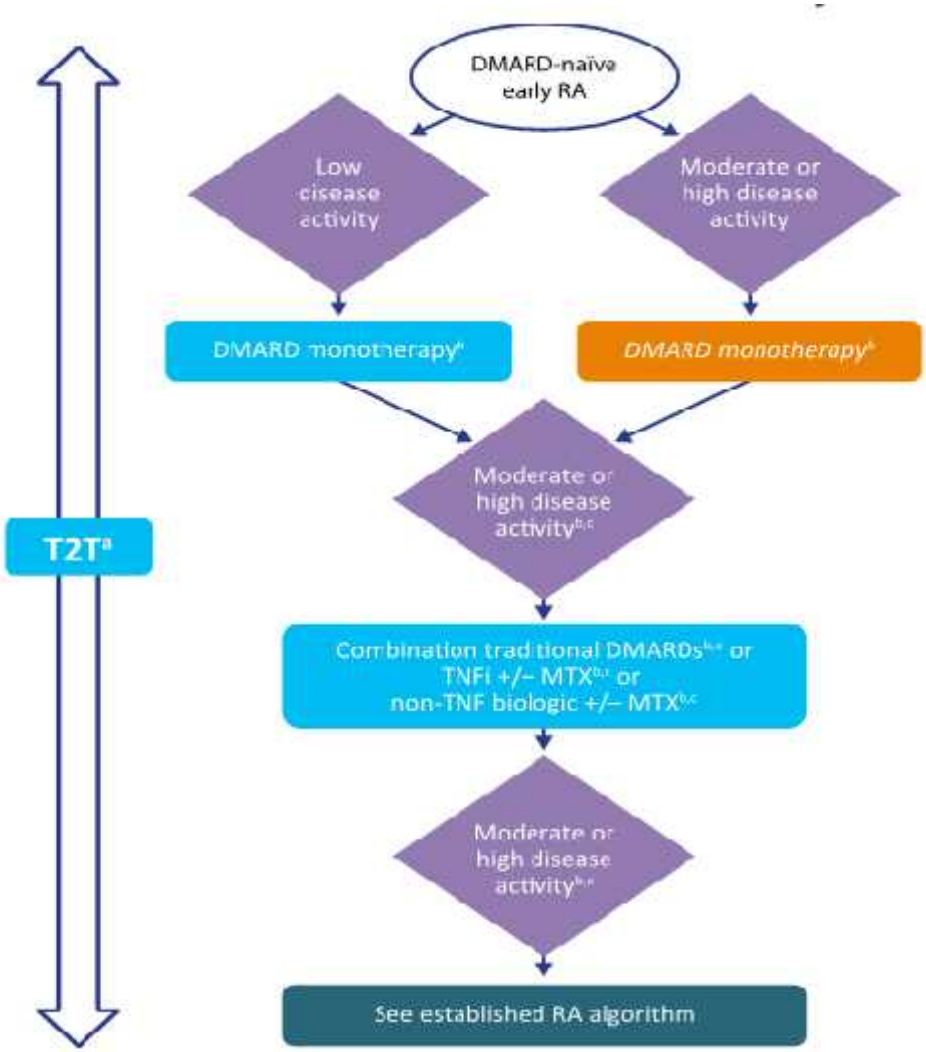
Biological agents

In patients with failed synthetic DMARDs, several biological agents are used for treatment of RA. An improved understanding of the pathogenesis in RA has led to more specific treatment strategies that interfere directly with the disease process. Currently five tumor necrosis factor (TNF) blockers (Adalimumab, Certolizumab, Etanercept, Golimumab and Infliximab) and three other biologics (Abatacept with Costimulation blockade, rituximab that modifies B-

cell activity, and Tocilizumab a monoclonal antibody against the interleukin 6 (IL-6) receptor) are available for the management of RA (Baji et al., 2014).[35] The efficacy of TNF inhibitors have been proven to manage patients not responding to conventional DMARDs. However, nearly 20% to 40% of patients treated with a TNF inhibitor fail to demonstrate 20% improvement in ACR criteria, or experience adverse events following the treatment. The newer therapeutic agents namely Rituximab and Abatacept, which have completely different mechanism of actions, are reported to be therapeutic agents with effective in demonstrating inadequate response to a first TNF inhibitor (Rubbert et al., 2009).[36]

A meta-analysis of 70 randomized placebo-controlled or drug-controlled studies by Graudal et al. have reported significant reduction in radiographic progression at 1 year, following treatment with DMARDs, glucocorticoids, biologic agents, and combination drugs. However, the study has also highlighted the need for limiting the use of biologics to patients resistant to DMARD therapy (Grauda et al., 2010).[37] There are different proposed approaches and guidelines for introducing DMARDs. While introducing the drug, due consideration should be given by the physician regarding the disease severity and other associated conditions, economic status of the patient, and availability of the medications. The first such guidelines were implemented in America by the American college of Rheumatology (ACR) in 2008. These guidelines are revised from time to time. The Indian Rheumatology Association has also framed similar guidelines. In brief, these guidelines advocate to treat the patients to attain low disease activity or remission. The figure 1 depicts the 2015 ACR recommendations for the management of early RA (Singh et al., 2016).[38]

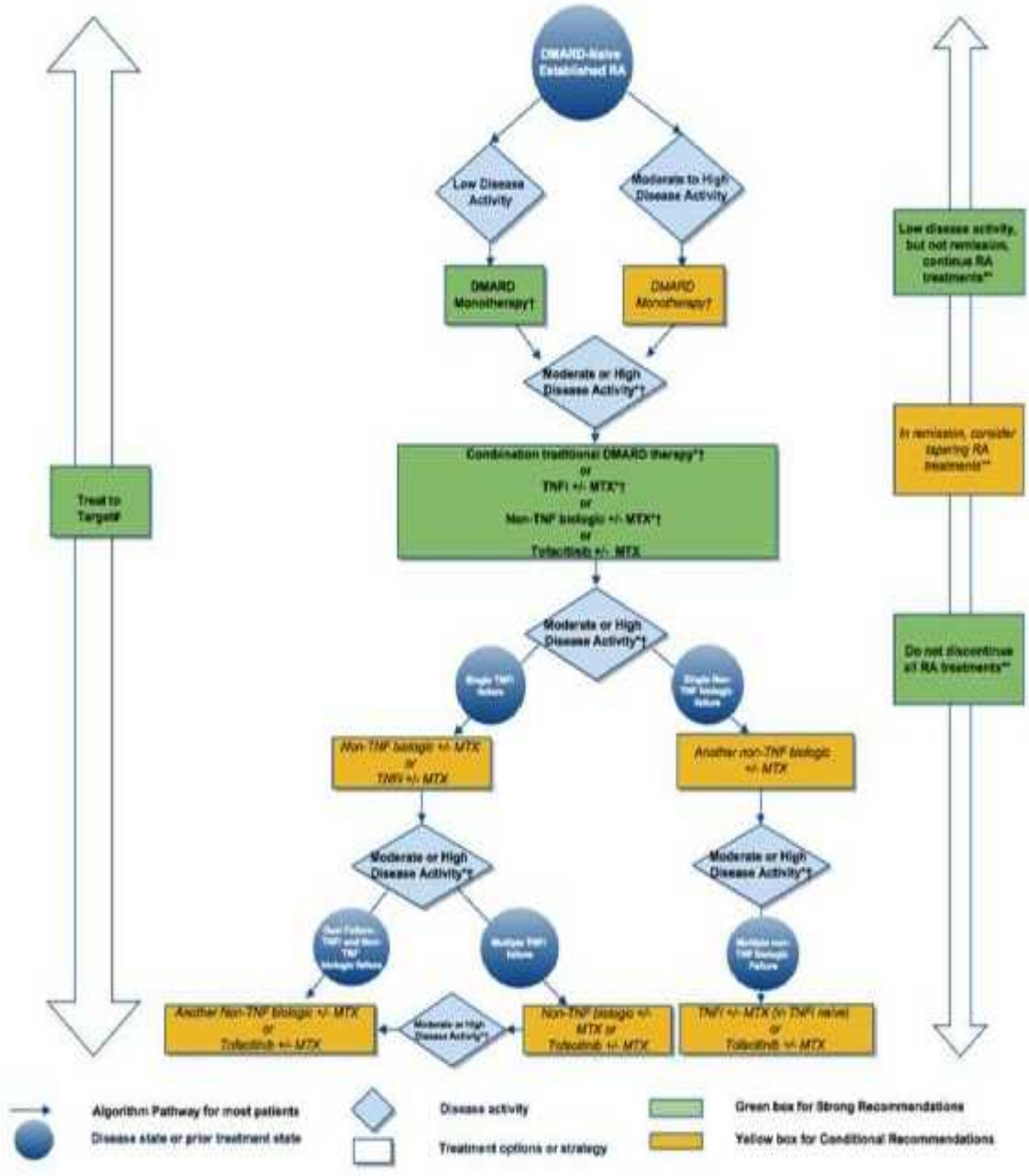
Fig. 1: 2015 ACR treatment recommendations for early RA



Source: Singh JA et al. Arthritis Rheumatol. 2016,68:1-26

The 2015 American College of Rheumatology (ACR) recommendations for the treatment of established rheumatoid arthritis (RA), defined as disease duration ≥ 6months or meeting the 1987 ACR classification criteria is depicted in figure 2.

Fig.2: The 2015 American College of Rheumatology (ACR) recommendations for the treatment of established RA



Source: Singh JA et al. Arthritis Rheumatol. 2016,68:1-26

Rheumatology care in rural settings

There is substantial literature evidence to validate that early identification and treatment of RA leads to improved outcome and rates of drug-free remission (Demoruelle et al., 2012).[39] Though a large number of drugs are available for treatment of RA, the drug usage may depend upon physician practices, patient-related characteristics, cost, and treatment adherence. A study by Malaviya et al. has highlighted that majority of patients with RA were treated by orthopedic and practitioners of alternative systems of medicine, whereas only one third sought the consultation of rheumatologists. In majority of the subjects, the disease diagnosis was made 18 months at the onset, yet the disease control was inadequate in 84%. The researchers also noted that only 56% of the diagnosis of RA was made by rheumatologists, and the remaining were done by orthopedicians (21%), internists (12.6%), physiotherapists (3.5%), homeopathy doctors (2.8%), general practitioner (2.1%), neurologists (1.4%) and ayurveda physicians (0.7%) (Malaviya AN etal., 2016).[40]

Majority of the RA patients receive inappropriate or suboptimal treatment prior to visiting a rheumatologist. Moreover, most patients consult a rheumatologist at late stages, often with deformities. A retrospective multi-center questionnaire survey by Raciborski et al. has concluded that diagnostic delays happening in RA patients could be attributed to reduced patient awareness regarding the early symptoms, queues to rheumatologists and referring patients to non-rheumatologists (Raciborski et al., 2017).[41] Hence, patients and doctors need increased awareness about this disease, so that patients get timely referral to a rheumatologist for the proper management.

There is certain international literature evidence on the difference in the patient profile accessing rheumatology care based on their residential status. The findings from the Ontario Best Practices Research Initiative have noted a higher RA disease activity, as indicated by swollen joint counts, among patients residing in rural area. (Movahedi et al., 2019).[42]A study conducted among the Polish population between 2008-2012 has reported increased RA morbidity in rural subjects than urban inhabitants.(Iltchev et al., 2016).[43] A systematic review by Hurd et al. noted that most of the studies demonstrated that indigenous patients with RA had higher disease activity and had significant impact on patient-reported outcomes and quality of life(Hurd et al., 2017).[44] In contrast to these findings, Brekke et al. found no significant difference in joint count scores and patients' or investigator's evaluation of disease severity between those living in an affluent versus a less affluent area in the same city(Brekke et al., 1999).[45]

The prevalence data from the first Indian COPCORD survey, carried out in village Bhigwan (Dist. Pune), has reported a significant rural spectrum of rheumatic-musculoskeletal symptoms/diseases. (Chopra et al., 2001).[46] Similarly, a house-to-house survey of a rural population conducted by Malaviya et al. has reported that the prevalence of RA in India is comparable to that of developed countries and much higher than those reported from Indonesia, Philippines, China and rural Africa (Malaviya et al., 1993).[12] In rural regions, the primary health centers are the first point of care as it is affordable, accessible and acceptable. Moreover, most of the patients in rural settings will seek specialist care only after seeking care from multiple providers.

In developing countries like India, women are restricted from seeking appropriate medical care due to the existence of a patriarchal social system. Women in rural areas often seek the help of men to accompany them to seek specialist care. A 2019 study conducted among rural area of a tertiary health-care facility in Odisha has reported 3-4 times increased prevalence in women than men. The study also highlighted the need to have accessibility to interprofessional care such as physiotherapists in primary health center and proper referral system to reduce the disease burden in rural areas (Pati et al., 2019).[5]

A study by Santra et al. involving 125 patients in a rural area of West Bengal, India has highlighted that a large number of patients seek homeopathic (12%), and ayurvedic (4%) consultations. In addition, misdiagnosis and mistreatment were found to be more common in subjects visiting quacks and alternative medicine practitioners. Gap in quality of treatment was evident, as only 28.8% cases were diagnosed correctly. Inappropriate recommendations of investigations such as antistreptolysin O titer, rheumatoid factor, and uric acid were observed. Inappropriate prescription patterns of medicines such as benzathine penicillin, steroid, etc. were noted (Santra 2015).[47]

In rural areas, patients may not have access to various tests from private laboratories and clinics. Moreover, poverty restricts them from undergoing frequent tests and physicians may need to treat the patients based on their clinical presentation. Other major challenges in rural settings include illiteracy, careless attitude of patients, lack of trained doctors, and lack of awareness regarding relevant tests and their interpretation (Mahajan 2020).[48]

Lacunae in literature

RA affects about 0.92% of adult population in India and gap in quality of rheumatology care is prevalent throughout the country. Early diagnosis and aggressive therapy are advocated to prevent permanent disability. Despite correct diagnosis, majority of the RA patients have poor disease control. This may be due to non-adherence to the treatment, taking the drugs only in suboptimal oral dose or inappropriate treatment. Majority of the studies suggest that most of the patients receive suboptimal/inappropriate treatment before visiting a rheumatologist. Early diagnosis and optimum use of DMARDs is essential to achieve remission or low disease activity. Most of the patients seek the consultation of a rheumatologist only at a later stage of the disease after developing deformities. This is lacunae in literature regarding the pattern of drug usage in rural patients, standard of rheumatology care in India and the quality of rheumatology care at the rural settings of India. This is no available literature evidence on the appropriateness of diagnosis and management of rheumatology disorders in rural communities of the country.

MATERIALS AND METHODS

Study site: This study was conducted in the General Medicine Department, Dr. PrabhakarKore Hospital, KLE University, Belagavi.

Study population: All the patients with a diagnosis of Rheumatoid Arthritis according

To the "ACR/EULAR Classification criteria 2010", attending the OPD of Rheumatology/General Medicine at KLES Dr. Prabhakar Kore Hospital and MRC, Belgaum were considered

As study population.

Inclusion criteria:

Patients aged above 18 years with a clinical diagnosis of Rheumatoid arthritis fulfilling the criteria of ACR/EULAR 2010 classification criteria for RA attending the OPD of Rheumatology/ General Medicine in KLES Dr. Prabhakar Kore Hospital and MRC Belgaum.

Exclusion criteria:

1) Patient with disease duration less than 6 week.

2) Patient with other connective tissue disorder and other medical conditions.

3) Patient unable to score their global visual analogue scale score or answer the questionnaires due to cognitive impairment.

Study design: The current study was a hospital based observational study.

Sample size: 100 patients

Sample size was calculated by using formula

$$n = \frac{Z\alpha^2 P (1- P)}{d 2}$$

Where P is the percentage of prevalence and d is the percentage likely difference in thePrevalence. Zα is linked with the level of significance.

For 5% level of the significance zα = 1.96.With P=80% and d=10% the sample size was 96. A total of 100 subjects were included in theStudy for final analysis.

Sampling method: All the eligible patients were included in the study by convenient

Sampling till the sample size was reached.

Study duration: The data for the present study was collected between January 2019 and December 2019, for a period of one year

Ethical considerations:

The present study was approved by the Institutional Committee of Human Ethics. Informed written consent was obtained from all the subjects included in the study. All the subjects participating in the study were informed about the risks and benefits of the study. We maintained the study participant's confidentiality.

Data collection tools: All the data that was collected was documented in a study proforma.

Methodology:

A) Patients details and a through clinical history was obtained for duration of symptom, duration and nature of any previous treatment, use of DMARDs, and use of Alternative medication.

b) All the patients' general physical examination, and careful examination of the joint were carried out.

c) All patients with Rheumatoid arthritis diagnosed according to EULAR classification criteria were included.

d) Questionnaires was asked to patient attending rheumatology clinic at Dr.Prabhakar Kore Hospital and MRC, Belagavi.

e) Disease activity assessment was carried out using instruments recommended by ACR namely clinical disease activity index (CDAI), calculated using below method.

CDAI=SJC+TJC+PGA (in cm) +EGA (in cm)

(SJC: Swollen joint count; TJC: Tender joint count; PGA: Patients global assessment; EGA: Evaluator global assessment)

CDAI cut-off value used-remission ≤2.8, Low disease activity >2.8 TO ≤ 10, Moderate disease activity >10 to ≤22 and High disease activity >22.

Follow up: No follow-up was done as the present study was a cross sectional study.

Investigations:

Serum Rheumatoid Factor OR Serum Anti- CCP.

Statistical methods:

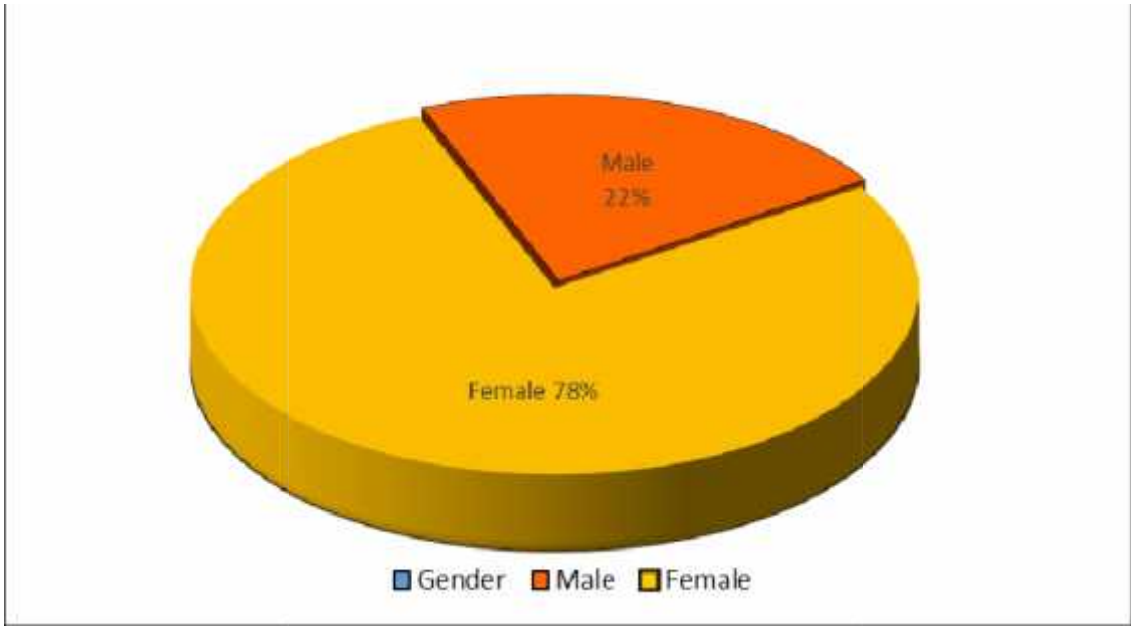
Descriptive statistics of all the variables were calculated. For the descriptive analysis, Student's t-test or ANOVA for continuous data and a chi-squared test or Fisher's exact test for categorical data was performed. Descriptive statistics are expressed as mean ±SD or n (%). All the results are summarized in tables, lists and /or figures wherever applicable. The statistical significance level was considered as <0.05%. For all the statistical analysis Statistical software R (version 3.6) was used.

RESULTS

A total of 100 subjects were included in the final analysis.

DESCRIPTIVE ANALYSIS

Figure 1: Graphical representation of Gender distribution



Among 100 patients, 78 were females and 22 were males. Our study showed a female predominance with Female: Male Ratio 3.54:1. Figure 1 illustrates the graphical representation of gender distribution among 100 patients of Rheumatoid arthritis.

Table 1: Distribution of patients according to different Age groups

Demographic profile	No of Patients	% of patients (n=100)
Age groups		
18-30yrs	14	14.00%
31-40yrs	18	18.00%
41-50yrs	24	24.00%
51-60yrs	26	26.00%
>=61yrs	18	18.00%
Min age(years)	18.00	
Max age(years)	76.00	
Mean age (years)	47.79±13.51	

Age based distribution of 100 patients included in the study was tabulated in the table (Table 1). Among all the patients, 14, 18, 24, 26, and 18 patients belonged to the age group of 18-30years, 31-40 years, 41-50 years, 51-60 years and >61 years respectively. The mean age of patients was found to be 47.79±13.51years with range of 18 to 76 years. In our study The mean age was 47.79 years. The majority of patients were middle aged 41-60 years(50%), of which 24% were between 41-50 years of age ,26 were between 51-60 years of age. The least number of patients belonged to age group of18-30yrs(14%). The oldest patient was of the age 76 years, the youngest being 18 years.

Table 2: Distribution of patients based on their Educational status

Education status	No of Patients	% of Patients (n=100)
Illiterate	38	38.00%
primary	16	16.00%
Secondary	14	14.00%
Higher secondary	14	14.00%
Degree and above	18	18.00%
Total	100	100.00%

Distribution of 100 patients based on their education status is tabulated in the table (Table2). Among all the patients, 38, 16, 14, 14, and 18 patients fall under illiterates, primary education, secondary education, higher secondary education and degree or above respectively. As our study was conducted in rural people, majority number of the patients were illiterate (38%), those who completed degree were about (18%).

Table 3: Delay between Onset of symptom and Presentation to rheumatology clinic

Onset of symptoms(in months)	Total number of patients Presented to rheumatology clinic
<6months	13
6-24months	29
>24months	58
Total(n=100)	100

Based on time for the patients' presentation to the rheumatology clinic from the onset of disease, it has been categorized as <6 months(Early disease), 6-24 months(Established disease), >24 months(Late disease),(Table 3). When we studied the delay between disease onset and presentation to rheumatology clinic we found that 58patients (58%) patient presented late(i.e>24months) to rheumatology clinic, 29patients (29%) presented to the clinic when the disease was established(i.e6-24 months) and only 13patients (13%) presented early(i.e<6months) to rheumatology clinic.

Graphical representation of the same as been shown in figure 2

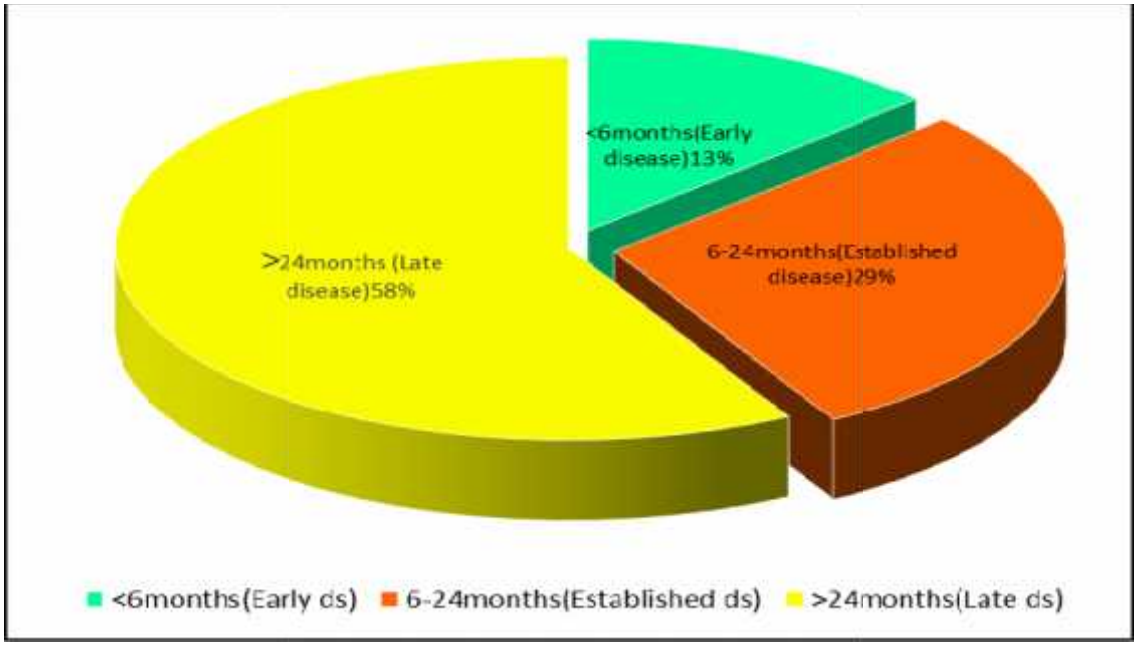


Figure 2: Distribution of patients based on the disease presentation

Table 4: Delay between symptoms onset and presentation to rheumatologist clinic by gender

Delay in months duration	Male	Female	Total
<6months	5(22.72%)	8(10.25%)	13
6-24months	7(31.81%)	22(28.20%)	29
>24months	10(45.45%)	48(61.53%)	58
Total	22(100%)	78(100%)	100
P Value = 0.2351			

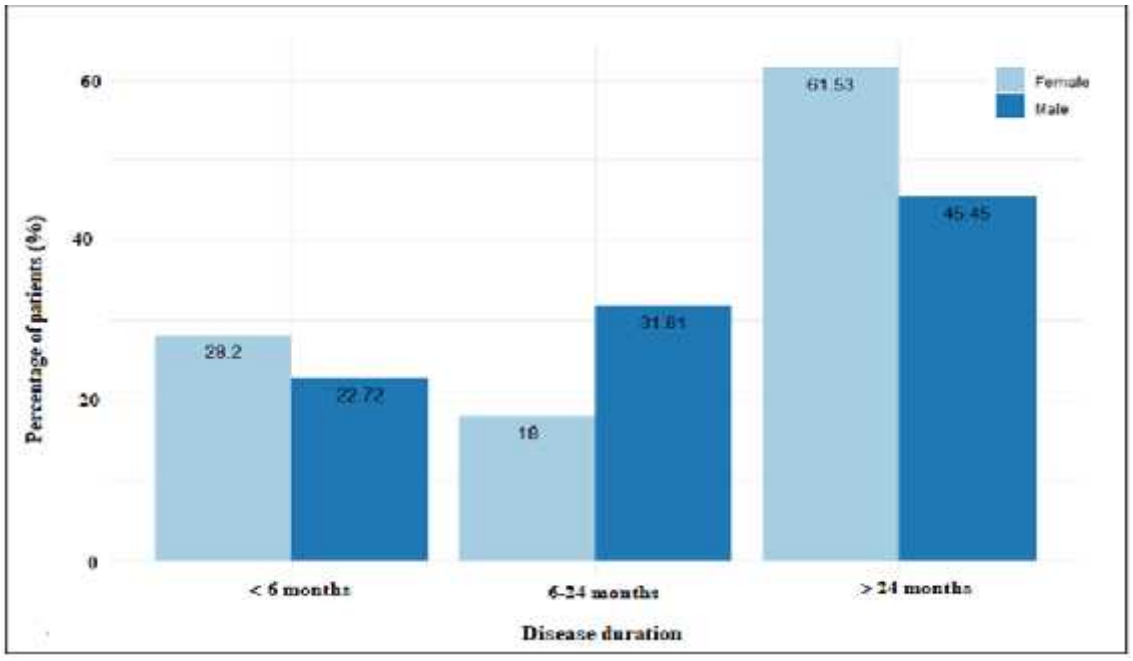


Figure 3: Delay between symptoms onset and presentation to rheumatologist clinic by gender

Distribution of patients based on the time for presentation to rheumatologist clinic is pictorially shown in Figure 3.Gender wise evaluation of time for the patients' presentation to the rheumatology clinic from the onset of disease was evaluated and

shown in Table 4. It was found among male patients , 10 patients (45.45%) presented late to the clinic i.e>24 months, 7 patients (31.81%) presented to clinic when disease was established i.e 6-24 months, 5 patients (22.72%) presented in early phase of disease i.e<6 month, respectively. For female patients,48patients (61.53%) presented late to the clinic i.e>24 months, 22patients (28.20%) presented to the clinic when the disease was established i.e 6-24 months, 5patients (22.72%)patients presented in early phase of disease i.e<6 month, respectively.

In our study, we found that the majority of female patients,i.e 48 (61.53%) presented late to the rheumatology clinic as compared to 10 male patients (45.45%).However, this difference was not statistically significant.

Table 5: Objective to study level of disease activity at the time of presentation to rheumatology clinic

Disease activity CDAI	Number of patients
Low	4
Moderate	25
High	71
Total	100

In our study, we found that majority of patients presented to rheumatology clinic were found to have high CDAI i.e71patients (71%), 25patients (25%) were having moderate CDAI, and only 4patients (4%) were having low CDAI. None of the patients were in the remission phase.

Table 6: Correlation between disease duration at the time of presentation to rheumatology clinic with respect to clinical disease activity index

Delay (in months)	Low CDAI	Moderate CDAI	High CDAI	Total(n=100)
<6months	0	2(15.38%)	11(84.61%)	13
6-24months	3(10.34%)	10(34.48%)	16(55.17%)	29
>24months	1(1.72%)	13(22.41%)	44(75.86%)	58
Total	4	25	71	100
P value =0.115				

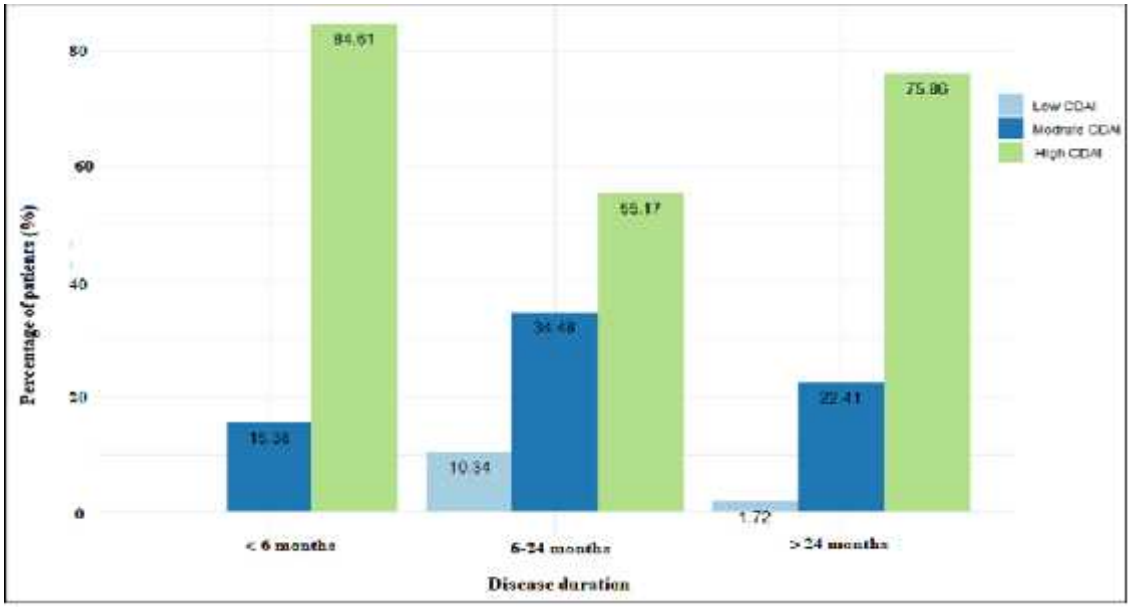
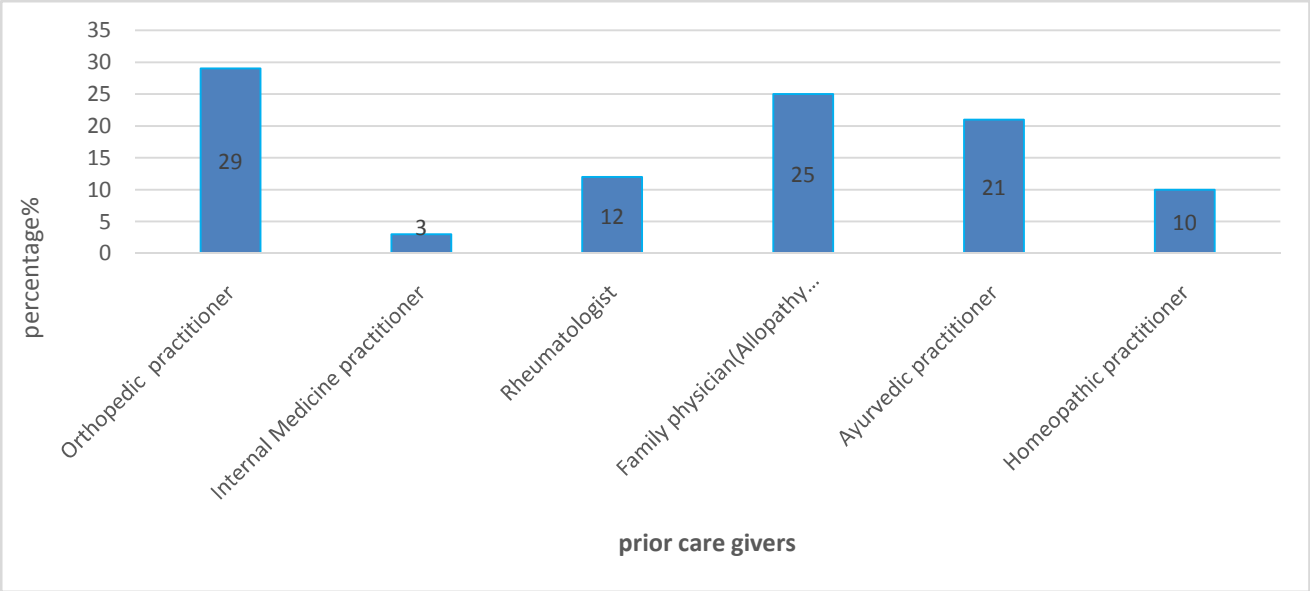


Figure 4: Correlation between disease duration at the time of presentation to rheumatology clinic with clinical disease activity index

Among 13 patients who presented to the clinic within 6 months from the onset of disease, 2 (15.38%) had moderate CDAI and 11(84.61%) had high CDAI. Out of 29

patients who presented to the clinic between 6 to 24 months, 3(10.34%), 10(34.48%) and 16(55.17%) patients had low, moderate and high CDAI respectively. Among 58 patients who presented to the clinic after 24 months from the onset of disease, 1 (1.72%) patient had low CDAI, 13(22.41%) had moderate CDAI and 44(75.86%) had high CDAI. Chi squared test performed to see the difference in the distribution of patients based on the disease duration at the time of presentation to rheumatology clinic with respect to clinical disease activity index. The difference among different group of patients was found to be non-significant (p value=0.115).

Figure 5: Distribution based on Prior care givers



In our study, we found that most of patient were treated by a different practitioner in which majority were treated by orthopedician i.e. 29% of patients, family physician 25%, ayurevedic practitioner 21%, very few were treated by rheumatologist i.e. 12%,and by internal medicine practitioner 3%.

Table 7: Relation between prior care givers and clinical disease activity at the time of presentation

Prior care giver	Low CDAI	Moderate CDAI	High CDAI	Total
Orthopedic practitioner	0	5(20%)	24(33.80%)	29
Internal Medicine practitioner	0	3(12%)	0	3
Rheumatologist	4(100%)	7(28%)	1(1.40%)	12
Family physician (allopathy graduates)	0	4(16%)	21(29.58%)	25
Ayurvedic practitioner	0	6(24%)	15(21.13%)	21
Homeopathic practitioner	0	0	10(14.08%)	10
Total	4	25	71	100 (n=100)
P value <0.001				

In our study when we compare prior care givers and disease activity we found that, Out of 4 patients who had low CDAI, all the patients (100%) were treated by rheumatologists. Among 25 patients who exhibited moderate CDAI, 5 (20%), 7(28%) , 4(16%) ,6(24%) and 3(12%) patients had treatment from orthopedic practitioner, rheumatologists, family physician (allopathy graduates) , Ayurvedic practitioner and internal medicine practioner respectively. Among 71 High CDAI patients, 24(33.80%), 1(1.41%), 22(29.58%), 15(21.13%) and 10(14.09%) patients were getting treatment from Orthopedic practitioner, Rheumatologist,family physician(allopathy graduates) , Ayurvedic practitioner and Homeopathic practitioner respectively. Those patients treated by rheumatologist were found to have low to

moderate disease activity as compared to those who were treated by orthopedician, Ayurvedic and homeopathic practitioner have higher disease activity(CDAI) 24(33.80%) and 15(21.13%) and 10(14.09%) . Distribution of patients based on the prior care givers with respect to the disease actively was found to be highly significant with p value =0.001.

Table 8: Comparison of Patients Global VAS with respect to the Prior care givers

Prior care giver	Patients Global VAS≤50%	Patients Global VAS >50%	Total (n=100)
Orthopedic practitioner	11(37.93%)	18(62.07%)	29
Internal Medicine practitioner	0(0.00%)	3(100%)	3
Rheumatologist	10 (83.34%)	2(16.66%)	12
Family physician (allopathy graduates)	7(28%)	18(72%)	25
Ayurvedic practitioner	10(47.62%)	11(52.38%)	21
Homeopathic practitioner	0(0.00%)	10 (100%)	10
Total	38	62	100
P value = 0.001			

We divided the Patients into two groups based on their Global VAS Score, i.e. VAS≤50% and >50%. The least Global VAS score in our study population was 0 and the highest score was 100.Out of 100 patients 62 patients i.e. 62% gave a patient Global VAS score >50

And 38 patients had</= 50% patient global VAS, out of 12 patients treated by rheumatologist 10(83.84%) patients were having patients global vas of </=50%, 2(16.66%) patients were having patient global vas of >50% and those patients treated by other practitioner were having higher patients global vas and the difference in patients global VAS with respect to the prior care givers was found to be statistically significant.

Table 9: Distribution based on Diagnosis of RA first made by different practitioner

Diagnosis first made by	Total number of patients	%
Orthopedic practitioner	29	29%
Internal Medicine practitioner	2	2%
Rheumatologist	40	40%
Family physician(Allopathy graduate)	13	13%
Ayurvedic practitioner	12	12%
Homeopathic practitioner	4	4%
Total	100	100%

In our study, diagnosis of RA in majority of patients was made by rheumatologist i.e in 40% of patients, 29% by orthopedician, 13%by family physician (Allopathy graduate), 12% by ayurvedic practioner, 4%homeopathic practitioner and 2% by internal medicine practitioner. Maximum patients were diagnosed by rheumatologist. The result is graphically shown in figure 6.

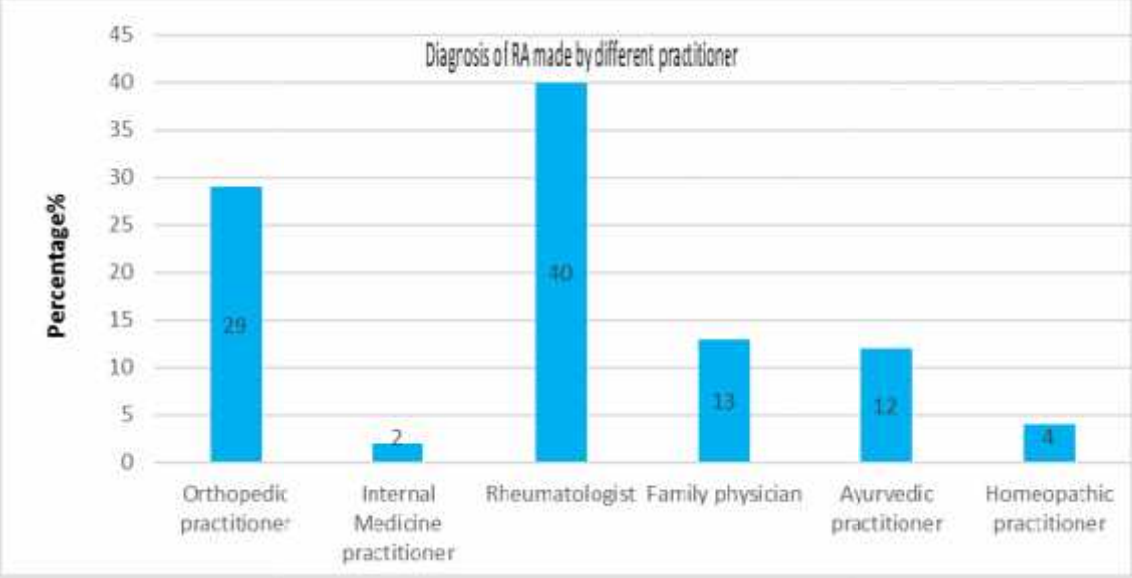


Figure 6: Diagnosis of RA made by different practitioner.

Table 10: Distribution based on Prior medication used by patients prior to their first visit.

Prior medication used by patients	Total number of patients	% of patients
Only NSAIDS	2	2%
Only GCs	1	1%
NSAIDS+GCs	12	12%
HCQ	2	2%
MTx	4	4%
MTx+Other drugs	51	51%
Alternative medicine	28	28%
Total	100	100%

In our study, we found that 57% of patients were on csDMARDs either single or in combination with other drugs, 43% of patients never used DMARDs prior to their first visit to the clinic. The majority of patient were receiving MTx in combination with other drugs prior to their first visit as follows: MTx+HCQ i.e36%, MTx+HCQ+GCs7%,MTx+NSAIDS/GCs 5%, MTx+LFN 2%, MTx+HCQ+LFN/SSZ+GCs 1%.Among patients those who were not on DMARDS ,28% of patients were on Alternative medicine(ayurvedic or homeopathic treatment)` prior to first visit,12%used NSAIDS+GCs,ONLY MTx 4%,ONLY HCQ 2%, Only NSAIDS2%,Only GCs 1%.None of the patients received biological DMADRs in our study.

Table 11: Table showing relation between Prior medication use and CDAI

Prior medication used by patients	Low CDAI	Moderate CDAI	High CDAI	Total(n=100)
Only NSAIDS(A)	0	1(50.00%)	1(50.00%)	2
Only GCs(B)	0	0	1(100%)	1
NSAIDS+GCs(C)	0	3(25.00%)	9(75.00%)	12
MTx(D1)	0	1(25.00%)	3(75.00%)	4
HCQ(D2)	0	0	2(100%)	2
MTx+HCQ(D3)	3(8.33%)	11(30.56%)	22(61.11%)	36
MTx+LFN(D4)	0	1(50.00%)	1(50.00%)	2
MTx+HCQ+GCs(E1)	0	1(14.29%)	6(85.71%)	7
MTx+NSAIDS/GCs(E2)	0	0	5(100%)	5
MTx+HCQ+LFN/SSZ+GCs(E3)	1(100%)	0	0	1
Alternative medicine	0	7(25.00%)	21(75.00%)	28
Total	4	25	71	100

In our study, we found thatmajority of patients were receiving combination of MTx+HCQ (36%).Among 36 patients who were given MTx and HCQ, 3(8.33%), 11(30.56%) and 22(61.11%)) patients had Low CDAI, Moderate CDAI, and High CDAI respectively. Among 28 patients receiving alternative medicine treatment, 7(25%) and 21(75%) patients had Moderate CDAI, and High CDAI respectively.

Table 12: Prior use of methotrexate in patients presenting to rheumatology clinic

Prior use of MTx	No	%
Optimum MTx>12.5mg	15	15.00%
Suboptimum MTx<12.5mg	40	40.00%
None(Never used MTx)	45	45.00%
Total	100	100.00%

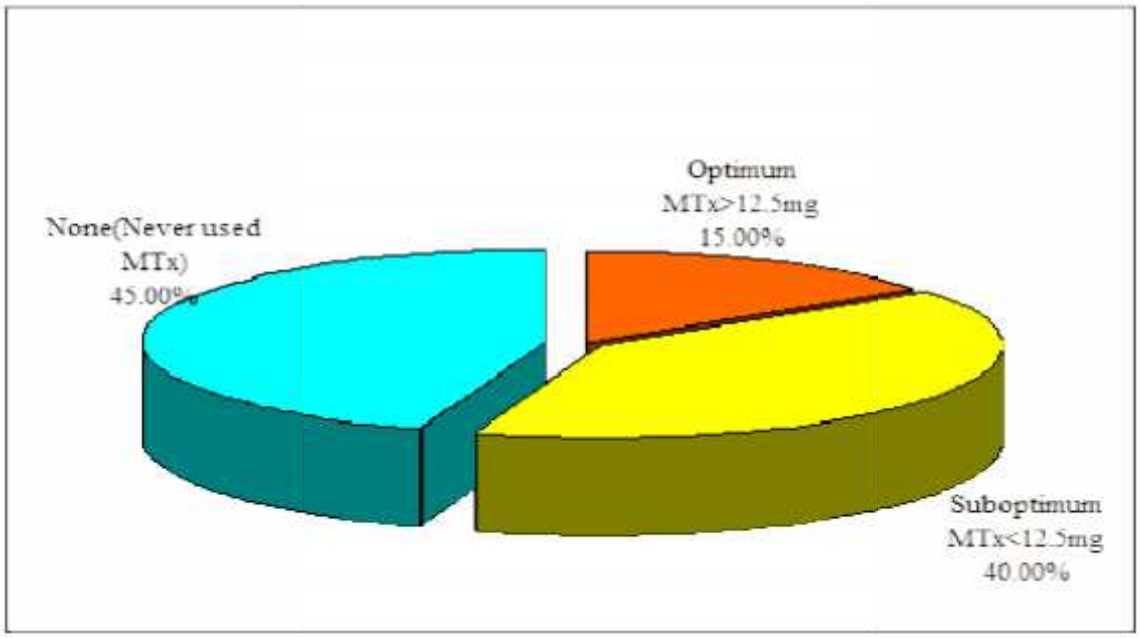


Figure 7: Graphical representation of patients with optimum, suboptimum and none (never used MTx)

Patients were enquired for the prior use of methotrexate (MTx) before presenting to rheumatology clinic, we found that 55% patients were on MTx, and 45% of patients never used MTx. Out of 55% of patient those who were on MTx,

40% received suboptimum dose of MTxi.e<12.5mg, only 15% of patients received optimum dose of MTxi.e>12.5mg.

Table 13: Disease Activity with methotrexate treatment

Prior use of MTx	Low CDAI	Moderate CDAI	High CDAI	Total (n=100)
Optimum MTx>12.5mg	4(26.67%)	8(53.33)	3(20)	15
Suboptimum MTx<12.5mg	0	6(15%)	34(85%)	40
None(never used Mtx)	0	11(24.44%)	34(75.55%)	45
Total	4	25	71	100
Chi-square=38.8197, P = 0.0001*				

*p<0.05

Based on the treatment with methotrexate, disease activity in terms of mean CDAI was calculated (Table 13).Among those patients on optimum dose of methotrexate 4(26.67%) patients were having low clinical disease activity,8(53.33%) moderate CDAI,3(20%)high CDAI. Among those who were on suboptimum dose of methotrexate 34(85%) of patients were having high clinical disease activity index, 6(15%) moderate CDAI. Among those patients who never used methotrexate, 34(75.55%) patients were having high clinical disease activity, 11(24.44%) moderate CDAI.Chi-square performed for the distribution of patients based on CDAI classification and MTx treatment revealed that, with different doses of MTx, there is a significant change in CDAI activities. Clinical disease activity index was more for

patients who were on suboptimum dose of MTx and those who never used MTx.This difference was statistically significant p value=0.0001.

Table 14: Distribution of patients with respect to deformities and MTx doses

Joint deformities	Optimum MTx>12.5mg	Suboptimum MTx<12.5mg	None(never used MTx)	PValue
Present	2(15.39%)	4(30.77%)	7(53.85%)	0.588
Absent	13(14.94%)	36(41.38%)	38(43.68%)	

Joint deformities due to RA were examined and compared between patients with optimum, suboptimum and none (never used MTx). Total 13 patients exhibited deformities in which majority of patients having deformity never used methotrexate i.e7(53.84%),4(30.76%) patients used suboptimum dose of methotrexate and only 2(15.38%) were having deformity who were on optimum dose of methotrexate.. Maximum deformation was found among patients with none (never used MTx)i.e 7(53.85%).

Table 15: Distribution of patients based on serology result

Serology	No	%
Positive	56	56.00%
Negative	44	44.00%
Total	100	100.00%

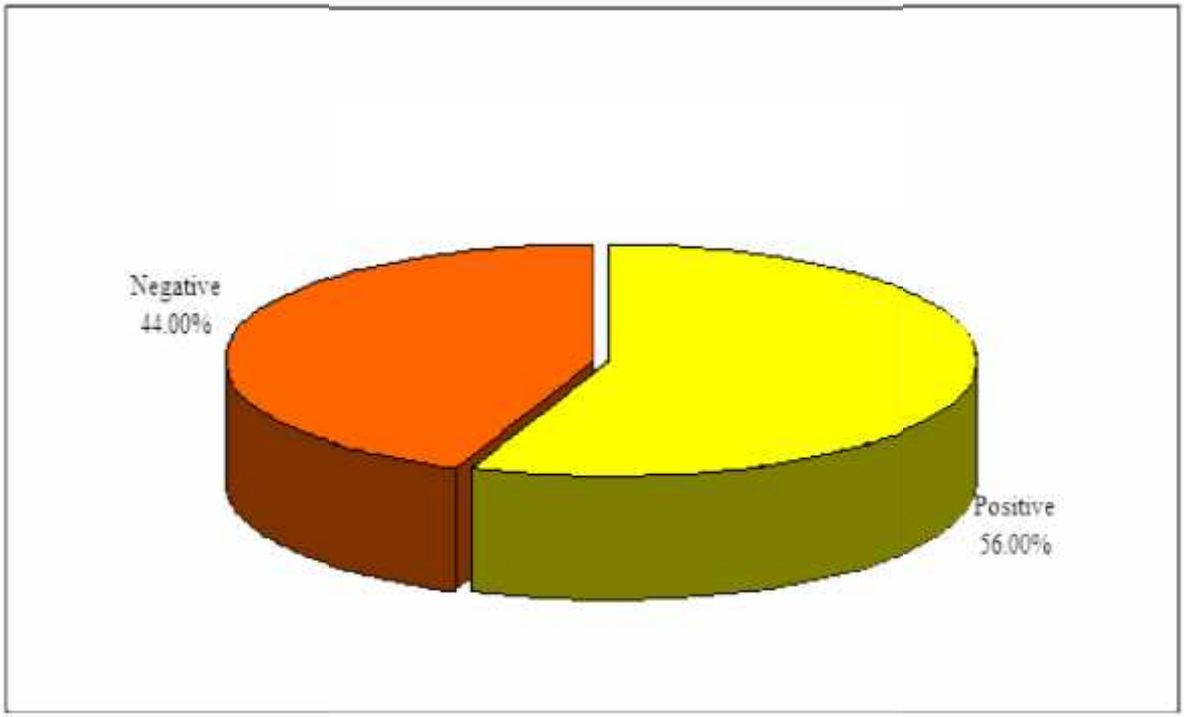


Figure 8: Distribution of patients based on serology result

In our study Out of 100 patients, Seropositive RA was diagnosed in 56 (56%) patients (either RF or Anti CCP positive) and 44 patients (44%) were seronegative. Graphical representation of serotypes of RA patients is illustrated in Figure8.

DISCUSSION

The present study was intended to evaluate the disease activity at presentation in patients with RA and prior pattern of drug usage with emphasis on dose of DMARDs used in RA patients. Demographic, clinical and treatment details were collected from medical records and a set of questionnaires. The study involved 100 selected participants with a mean age of 47.79±13.51 andmean disease duration of 66.37±81.95 months. The present study showed a female predominance, with a female to male ratio of 3.54:1. A similar study by Jasani et al., evaluating the prescribing pattern and quality of life of RA patients, has also reported increased female preponderance with male-to-female ratio of 1:11.5 and mean age of 45.94 ± 12.42 years(Jasani et al., 2019)[49].

The number of subjects noted with seropositive and seronegative RA in the current studywere 56 (56%) patients and 44 patients (44%) respectively. A comparative study by Choi and Lee evaluated the clinical management of seropositive and seronegative RA. The corresponding seronegative and seropositive RA identified were 40 and 201. The study showed more active manifestation of seronegative RA, but the treatment response was better for this group, as opposed to seropositive RA (Choi et atl., 2018)[50].

Our observational study conducted on 100 patients of rheumatoid arthritis revealed that majority of patients i.e. 58% presented to a rheumatology clinic late i.e. after 24 months since symptoms onset. Similar to these finding, the corresponding mean and the median diagnostic delays noted in the study by Malaviya and Gogia were 18 and 8.5 months (Malaviya et al., 2016)[51]. In concurrence with these findings, a study conducted in the inner-city population in Birmingham, UK, by et al. has concluded that patient-dependent factors lead to the delay in consulting primary care physicians and the same could be attributed to delay in seeking rheumatology care. The study also highlighted the need of early therapy to achieve improved outcome and to understand the reasons causing delay in diagnosis (Kumar et al., 2007)[52]. A 2017 study by Barhamain et al.has conducted a review of reported lag times

from the onset of symptoms and found around 12 months as the weighted average of median lag time from symptom onset to initiation of treatment. The main factorsfor delay identified were ethnicity, gender, availability, knowledge of primary care clinician about the disease (Barhamain et al., 2017)[53].

Gender-wise evaluation of the current finding demonstrated a major disparity in the number of women seeking rheumatology care in the rural setting. The study has noted that nearly 61.53% of the female patients approached the rheumatology clinic very late as opposed to the male counterparts (45.45%). In line with these findings, a study by Pati et al. conducted in the rural settings of Odisha, India has reported that women in India often face difficulties in seeking appropriate care due to the presence of pluralistic health-care system and patriarchy social system. In addition, women often prefer the accompany of a male, while they seek specialist care. These findings substantiate the role of gender as a predictor of RA outcomes in the country (Pati et al., 2019)[54].

The study noted that majority of the subjects were treated by orthopedician (29%), followed by family physician (25%), ayurevedic practitioner (21%), rheumatologist (12%), and internal medicine practitioner (3%). Similar to these findings, the study by Malaviya and Gogia reported orthopedicians as the common prior caregivers (73%), followed by alternative medicine practitioners (62%), internists (38%), rheumatologists (36%), general practitioners (17%) and others (12%) (Malaviya et al., 2016)[51].

In our study, we found that majority of patients (i.e. 71%) presented to rheumatology clinic were found to have high CDAI. This is in line with the study finding by Malaviyaand Gogia. The researchers have noted that nearly 84% of the subjects demonstrated high or

moderate disease activity at the initial presentation, which reduced to 14% at last visit(Malaviya et al., 2016)[51]. This finding shows that majority of the subjects would not consult a rheumatologist, unless the disease had progressed to the advanced levels. A south India-based study by Kumar et al. reported CDAI as the preferred rapid assessment tool of disease severity at the time of presentation. The study involved 82 females and the median CDAI [36 (28-43)] indicated that the disease activity of the selected participants was very high at the time of initial presentation (Kumar et al., 2017)[55].

Among the 71 patients with high disease activity index, 34%were treated by an orthopedician,29.58% byfamily physician, 21.13% by ayurvedic practitioner , 14.09% byhomeopathic practitioner, and1.41%were seeking treatment fromrheumatologist respectively. An observation study involving 822 patients has reported the median general practitioner delay of 6.9 weeksand median hospital delay of 4.7 weeks(Stack et al., 2019)[56]. The study reported delay at all the levels, prior to the assessment by a rheumatologist, and underscored the need for prompt onward referral system from primary care for appropriate patient care (Stack et al., 2019)[56]. A 2007 study by Zaman et al.explored the usage of complementary alternative medicine by Indian patients prior to seeking rheumatologist consultation. The researchers noted frequent use of complementary medicine by the RA patients and concealing the same from the treating clinician. It is imperative to inform the clinician regarding the concurrent use of alternative medicine to avoid potential drug interactions and side effects.Thestudy conducted on 120 RA patients noted that 39% patients used Complementary and alternative medicine (CAM), and Ayurveda was the commonest (28%) followed by homoeopathy (20%), yoga asana (17%) and pranayama (12%). Pain control was given as theprimary reason by majority of the patients for using alternative medicine (69%) (Zaman et al., 2007)[57]. Similarly, a study by Santra et al. involving 125 patients in a rural area of West Bengal, India has highlighted that a large number of patients seek homeopathic (12%), and ayurvedic (4%) consultations(Santra 2015)[58]. The 2002 study by Chandrashekara et al. reported that around 43% used complementary and alternative

medicine for treating arthritis and 50% used more than 2 modalities (Chandrashekara et al., 2002)[59].

In our study, categorization of thepatients based on the VAS score demonstrated that, out of 12 patients treated by rheumatologists, 10(83.34%) patients had </=50%, and 2(16.66) patients had VAS >50%. Those patients treated by other practitioners had higher VAS and the difference in VAS with respect to the prior care givers was found to be statistically significant. As per the previous literature review, there is no Indian-based study comparing VAS score of patients treated with rheumatologists with that of other practitioners. Hence, the present study could be considered as the first-of-its-kind from India. Ahluwalia et al. have concluded that a well-trained and experienced extended-role practitioner can reduce time-to-treatment-decision and time-to-rheumatologist assessment and triaging patients suspected with inflammatory arthritis. This will be ideal for a community-based practice where there is limited resources for arthritis care. Providing post licensure training will be sufficient l for a healthcare provider to acquire the necessary skill and knowledge (Ahluwalia et al., 2019)[60]. A national cross-sectional GP survey by Scott et al. demonstrated that general practitioners were moderately confident at diagnosing RA using self-rated VAS. The study noted that only 26% suspected with RA was referred immediately without investigations; thereby highlighting the need of paradigm shift in referral system approaches at the GP level (Scott et al., 2018)[61].

In our study,57% of patients were on conventional DMARDS either single or in combination with other drugs. However, 43% of patients never used DMARDS prior to their first visit to the clinic. Majority of the patients (36%) were on methotrexate and HCQ combination treatment.Prior to the first clinic visit, 28% of the patients had tried on alternative medicine (ayurvedic or homeopathic treatment), 12% used NSAIDs and glucocorticoids combination, 2% only NSAIDS, and 1% only glucocorticoids. In the study by Malaviya and Gogia, among the 60% patients who received DMARDs, the corresponding percentage of the subjects who received methotrexate, hydroxychloroquine, leflunomide and sulfasalazine were 56%, 46%, 19% and 21% (Malaviya et al., 2016)[51]. Similar to these

findings, a meta-analysis done by Choy et al. (2005) found that the methotrexate-HCQ combinationtherapy was more effective than monotherapy (RR 0.35; 95% CI 0.28, 0.45). MTX in combination with sulphasalazine, antimalarial or TNF-alpha inhibitors had showed good efficacy (Choy et al., 2005)[62].NSAIDs are commonly used as first-line agents for achievingsymptomatic relief from inflammatory conditions. Despite improvement in pain and stiffness, these drugs do not have any effect onreduce acute-phase reactants or preventing radiographic progression.

In our study, the diagnosis of RA in majority of patients was made by rheumatologisti.e40%. The corresponding diagnoses made by orthopedician, family physician, ayurvedic practitioner, homeopathic practitioner and internal medicine practitioner were 29%, 13%, 12%, 4% and 2% respectively. This finding is comparable to that of Malaviya and Gogia, which showed that the diagnosis was primarily concluded by rheumatologists (55%) followed by orthopedicians (21%). The diagnoses made by internists, physiotherapists, homeopaths, general practitioners, neurologists and ayurvedic practitioners were13%, 4%, 3%, 2%, 1% and 0.7% (Malaviya et al., 2016)[51]. In concurrence with aforementioned results, a review by Suresh has noted that only 10% of eligible patients was prescribed with DMARD by a general practitioner prior to their first clinic appointment.In addition, the literature evidence substantiates that subjects managed by rheumatologists performed better than those managed by non-rheumatologists. The study has recommended early referral to a rheumatologist for effective management of RA or RA-like polyarthritis (Suresh 2004)[63].

The current study noted maximum deformation among patients who took suboptimum or never used MTX, and only 15% who were on optimum dose of the drug developed deformity.Studies validate the the efficacy of MTX as monotherapy and in combination, and it is the most commonly used therapeutic agent for managing RA. The study by Malaviya and Gogia also reported that Non-use or suboptimal use of MTX as the key reason for poor disease control noted in 84% of the subjects (Malaviya et al., 2016)[51]. A

2016 review by Malaviya et al. scrutinized landmark papers published on the discovery of MTX and highlighted the wrong stigmatization of low-dose-MTX as 'a cancer drug'. Despite several international guidelines and clinical trials substantiating the effectiveness of low-dose MTX, RA patients are not being prescribed with the optimal dose of the drug due to the wrong stigmatization linked to the drug use (Malaviya ., 2016)[64]. As per the ACR/EULAR recommendation, MTX monotherapy should be the primary choice and should be initiated at the earliest time point, if there are no contraindications. There is substantial evidence to validate the therapeutic benefits of MTX such as slow progression, prevention of joint erosion and deformity, reduced cardiovascular morbidity and improved survival (Zenuk 2018)[65].

CONCLUSION

1) Our observational study conducted on 100 patients of rheumatoid arthritis revealed that majority of patients i.e. 58% presented to a rheumatology clinic late i.e. after 24 months since symptoms onset.

2) Among these patients 43%patients had not received any DMARDs in past .Among 57% who were on DMARDs only 15% were on optimum dose of methotrexate >12.5mg/week.

3) Out of these 100 patients 71% had high disease activity at the time of presentation and only 4% were having low CDAI.

STRENGTH AND LIMITATIONS

The present study provides a comprehensive insight on the management of RA at a tertiary care hospital in a rural setting in India. To the best of our knowledge, this is one of the few studies from a rural setting in Karnataka evaluating the level of disease activity at presentation, prior pattern of drug usage, and time between symptom onset and diagnosis delay of RA.Thestrengths of the study include an optimal sample size (n=100) and adequate power to obtain clinically meaningful results.Since the study setting was a tertiary care centre, it had a fair representation of subjects from different sections of the rural setting. The employment of robust statistical tests helped to generate valuable information on the level of disease activity at presentation and factors influencing the late consultation. One of the major limitations of the study is restricting the study to only one centre, which would have impaired the generalizability of the findings.

SUMMARY

The present study evaluated the level of disease activity at presentation, the prior pattern of drug usage with emphasis on dose of DMARD use, and the time between symptom onset and diagnosis delay of rheumatoid arthritis. The study was conducted among adult subjects who presented to the outpatient department of KLE's Dr.Prabhakar Kore Hospital and Medical Research Centre, Belagavi, Karnataka, India. The study involved 100 participants selected based on the inclusion and exclusion criteria. Demographic, clinical and treatment details were collected from medical records and a set of questionnaires. The data were analysed using R software. The mean age of the subjects was 47.79±13.51 and mean disease duration was 66.37±81.95 months. The key study findings observed were as follows:

•A female predominance, with a female to male ratio of 3.54:1 was observed.

•The number of subjects noted with seropositive and seronegative RA in the current study were 56 (56%) patients and 44 patients (44%) respectively.

•In the present study, majority of patients(58%)presented late to rheumatology clinic i.e. after 24month of symptom onset and only 13%presented in the early phase of disease i.e.<6months.

•Gender-wise evaluation demonstrated a major disparity in the number of women seeking rheumatology care in the rural setting.

• In our study, we found that majority of patients (i.e. 71%) presented to rheumatology clinic were found to have high CDAI.

•Among the 71 patients with high disease activity index, 24(34%) were treated by orthpedician, 21(30.96%) by family physician, 15(21.13%) by ayurvedic practitioner,

10(14.09%) by homeopathic practitioner, and only 1(1.41%) of patients treated by rheumatologist.

•Categorization of the patients based on the VAS score demonstrated that, out of 12 patients treated by rheumatologists, 10(83.84%) patients had </=50%, and 2(16.66%) patients had VAS >50%.

•Around 57% of patients were on traditional DMARDS either single or in combination with other drugs. However, 43% of patients never used DMARDS prior to their first visit to the clinic.

•In our study, the diagnosis of RA in majority of patients was made by a rheumatologist (40%). The corresponding diagnoses made by orthopedician 29%, by family physician (Allopathy graduate) 13%, by ayurvedic practioner12%, by homeopathic practitioner 4% and by internal medicine practitioner 2%.

•Maximum deformation was noted among patients who took suboptimum or never used MTx, and only 15% who were on optimum dose of the drug developed deformity.

The present study provides a comprehensive insight on the management of RA at a tertiary care hospital in a rural setting in India. To the best of our knowledge, this is one of the few studies from a rural setting in Karnataka evaluating the level of disease activity at presentation, prior pattern of drug usage, and time between symptom onset and diagnosis delay of RA. The strengths of the study include an optimal sample size (n=100) and adequate power to obtain clinically meaningful results. Since the study setting was a tertiary care center, it had a fair representation of patients from different sections of the rural setting. Since many patients from rural background don’t seek medical attention at the earliest, there is a need for more facilities for treatment and early referral to rheumatology clinic.

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ANNEXURE I

ETHICAL CLEARANCE CERTIFICATE

K.L.E. ACADEMY OF HIGHER EDUCATION AND RESEARCH
(Deemed – To-Be- University)
Accredited 'A' Grade by NAAC (2nd Cycle) Placed in Category 'A' by MHRD (GoI)
JAWAHARLAL NEHRU MEDICAL COLLEGE,
NEHRU NAGAR, BELAGAVI-590010 (KARNATAKA-INDIA)
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Fax No. +91 (0)831 – 2470759

Ref: MDC/DOME/ 56 **Date: 24/11/2018**

To,

REG. NO. BG0118013
PG student in Medicine,
J.N.Medical College,
BELAGAVI.

Sub: Institutional Ethical Clearance for the study.

With reference to the above, we wish to inform you that your proposed research project titled **"THE PATTERN OF PRIOR DRUG USAGE, LEVEL OF DISEASE ACTIVITY AT PRESENTATION TO RHEUMATOLOGY CLINIC IN RURAL PATIENT OF RHEUMATOID ARTHRITIS – ONE YEAR OBSERVATIONAL STUDY FROM RHEUMATOLOGY CLINIC AT KLES DR. PRABHAKAR KORE HOSPITAL AND MRC, BELAGAVI",** is ethical and justifiable. The proposed research project has been cleared by the JNMC Institutional Ethics Committee on Human Subjects Research.

(Dr. Arathi Darshan)
Member Secretary
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College, Belagavi.

(Dr. Roopa M Bellad)
Chairman
JNMC Institutional Ethics Committee
on Human Subjects Research,
J.N.Medical College Belagavi.

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ANNEXURE II

INFORMED CONSENT

INFORMED CONSENT

"The pattern of prior drug usage, level of disease activity at presentation to rheumatology clinic in rural patient of Rheumatoid Arthritis- one year observational study from Rheumatology clinic at KLES Dr.Prabhakar Kore Hospital and MRC,Belagavi."

PRINCIPAL INVESTIGATOR: **REG. NO.BG0118013**

Post Graduate student
Department of General Medicine.

CO-INVESTIGATOR:**DR.** _____
Associate Professor,
Department of general medicine
J.N. Medical College, Belagavi.

INTRODUCTION AND PURPOSE:

The present study is conducted among patients with rheumatoid arthritis attending the out-patient department of Rheumatology and Medicine in K L E' s Dr.Prabhakar Kore Charitable Hospital and Medical Research Centre, Belagavi and will be asked about the pattern of prior drug usage and examined for level of disease activity at presentation. You are requested to participate in the study and your participation is completely voluntary.

PROCEDURE:

If you agree to participate in this study, the relevant data will be collected as per the proforma and the final diagnosis will be confirmed. After getting inculcated in the study, you will be evaluated for Rheumatoid arthritis, joint examination will be done, few questionnaires will be asked to evaluate how the disease has affected your daily life, few blood investigations like CBC,ESR, CRP, Rheumatoid factor, Anti CCP will be done if required and treatment will be started on the basis of clinical presentation.

BENEFITS: Patient will not be eligible for any kind of monetary benefits or free services by virtue of your participation in the study.

RISKS: Methods applied to do the study are safe.

COST OF PARTICIPATION:

The cost of the Investigation will be borne by the Study Subject. The other indirectExpenses will be borne by the Investigator.

PRIVACY AND CONFIDENTIALITY:

The results of the study may be published in journals for scientific purposes. However your identity will not be revealed. All information collected will be coded so that no one other than the investigator will know your identity.

WITHDRAWAL FROM THE STUDY:

You can withdraw from the study at any time if you wish to do so.

AUTHORIZATION TO PUBLISH THE RESULTS:

The researcher may use the information gathered from this study for presentation inscientific meetings. However your identity will not be revealed.

QUERIE SAND CONTACT:

If you have any queries regarding the study, you can contact **REG. NO.BG0118013**without any hesitation on and the guide Dr. _____. If you have any questions about rights as a research participant you can contact Dr.Roopa Bellad, Chairman, College Ethical Dissertation and Research Committee. N. Medical. College, Belagavi

CONSENT FORM

I voluntarily agree to take part in this study by signing below. I may withdraw at any time. I am not giving up any of my legal rights by signing this form. My signature below indicates that I have read this consent form, or it has been read to me, this consent form and have had all the questions answered.

Signature / Left Thumb print of the Participant or legally authorized representative

Participant's name :……...

Signature / Left thumb impression: ……...

Of the participant

Name of the legally authorized :……...

Representative / guardian

Signature / Left thumb impression :

Witness' name :

Signature / Left thumb impression :

Investigator's name and signature :

Date:

Place:

ANNEXURE III

PROFORMA

The pattern of prior drug usage ,level of disease activity at presentation to Rheumatology clinic in rural patient of rheumatoid arthritis - one year cross sectional study .

Date:

O.P.No: IP No:

Name: A ge:

Sex: Occupation:

Address: Income:

Phone No: Education: none [0]

Primary [1]

Secondary [2]

Preuniversity [3]

Degree [4]

Post graduate [4]

CLINICAL PROFILE:

Chief Complaint:

History of Present Illness:

Disease duration: < 1yrs.: [1] 2 to 10 yrs. :[3]

1 to 2 yrs.: [2] >10 yrs. : [4]

ANNEXURE IV

KEY TO THE MASTER CHART

Gender	Male,female
Age	18-30,31-40,41-50,51,60,61years
Educational status	Illiterate,primary,secondary,higher secondary,degree
Disease duration	<6 month,6-24 months,>24 months
Questionnaires	
1,2,6	A)<6MONTH,B)6MONTHS-1YEAR,C)1-2YEARS,D)2-5YEARS,E)5YEARS
3,5	A)Orthopaedic ,B)Internal medicine practitioner,C)Rheumatologist,D)Family physician,E)Others(ayurvedic and homeopathic)
4	A)NSAIDs,B)GCs,C)NSAIDs+GCs,D)MTx +other drugs,E)alternative medicine
10	A)optimum,B)suboptimum,C)none(never used)
Physiotherapyreceived	Yes, no
Smoking	Present, absent
Alcohol	Present, absent
F/h/o Autoimmune disease	Present ,absent
F/h/o arthritis	Present, absent
Physical examination (1,2,3,4,5,6,7,8)	Present ,absent
Pain vas	0-100
Patients global vas	0-100
Physician vas	0-100
Tender joint count	0-28
Swollen joint count	0-28
CDAI	≤2.8,2.8-≤10,10-≤22,.22

SR.NO	OP.NO/IP. NO	AGE	SEX	EDUCATION	ADDRESS	DISEASE DURATION	QUESTIONNAIRE											SMOKING	ALCOHOL	F/H/OARTHRITIS	F/H/OAUTOIMMUNE DISEASE	PHYSCIAL EXAMINATION								EULAR CRITERIA	TJC	SJC	PAIN VAS	PATIENTS GLOBAL VAS	PHYSCIAN GLOBAL VAS	CDAI INDEX	SDAI INDEX	SEROLOGY	HSCRP
							1	2	3	4	5	6	7	8	9	10	11					1	2	3	4	5	6	7	8											
1	455134	52YEARS	FEMALE	NONE	THIRTHKUNDE,KHANAPUR	11YEARS	E	E	A	D2	D	E	A	-	B2	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	PRESENT	PRESENT	6	12	6	70	80	50	31	-	NEGATIVE	-
2	4727577	36YEARS	MALE	PREUNIVERSITY	SAMPAGAON	5MONTHS	A	A	A	D1	A	A	A	-	A2	B	A	YES	YES	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	10	12	5	30	50	20	24	-	POSITIVE	-
3	5013823	42YEAR	MALE	SECONDARY	PEELANWADI	2YEARS	B	A	B	E1	C	A	A	B	A4B2	A	B	YES	YES	NO	NO	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	9	24	1	90	100	70	42	-	POSITIVE	-
4	3893808	40YEARS	FEMALE	NONE	BANAHATTI	4YEARS	D	D	A	E2	C	C	A	B	A3B1	B	A	NO	NO	NO	NO	PRESENT	ABSENT	ABSENT	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	9	18	6	80	95	70	40.5	-	NEGATIVE	-
5	5064953	55YEAR	FEMALE	PRIMARY	DARGAGALLI,NESRI	8YEARS	E	E	B	D1	B	D	A	-	A3	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	10	27	18	70	80	70	60	-	POSITIVE	-
6	4031182	36YEARS	FEMALE	PRIMARY	SANGAPUR	5YEARS	D	D	E1	F	D	C	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	6	23	12	50	60	50	46	-	NEGATIVE	-
7	4946172	53YEARS	FEMALE	SECONDARY	NANDIKURALI,RAIBAG	2YEARS	C	C	A	D3	B	A	A	-	A2B1	B	A	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	11	6	90	90	70	33	-	NEGATIVE	-
8	5085453	42YEARS	FEMALE	NONE	BEKKERI,RAIBAG	4YEARS	D	D	D	C	A	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	10	6	75	80	50	29	-	NEGATIVE	-
9	4496393	45YEAR	FEMALE	SECONDARY	JUGAL,ATTHANI	7YEARS	E	D	D	D3	C	D	A	-	A3B1	B	B	NO	NO	NO	YES	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	16	10	80	90	70	42	-	NEGATIVE	-
10	5080543	34YEARS	MALE	DEGREE	HIREKODI	8YEARS	E	D	A	D3	C	D	A	-	A2B1	B	B	YES	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	15	3	50	50	30	26	-	POSITIVE	-
11	4373290	65YEARS	FEMALE	NONE	NEGINHAL	30YEARS	E	E	D	D3	E1	E	A	-	A1B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	20	11	80	80	70	46	-	NEGATIVE	-
12	4984503	45YEARS	FEMALE	NONE	HOSUR	4YEARS	D	D	E4	F	E4	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	23	6	75	80	60	43	-	NEGATIVE	-
13	4740939	67YEARS	MALE	PRIMARY	BEKKERI,RAIBAG	4MONTHS	B	A	D	D2	C	A	A	-	B2	-	B	YES	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	7	18	4	90	95	75	39	-	NEGATIVE	-
14	4825769	50YEARS	MALE	PRIMARY	HUKKERI	12YEARS	E	E	E1	E	C	E	A	B	A4B2	A	B	YES	YES	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	7	11	4	50	60	40	25	-	NEGATIVE	-
15	4685616	45YEARS	FEMALE	PRIMARY	KOKATNAR	3YEARS	D	D	D	D3	C	C	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	7	20	1	50	60	25	29.5	40.25	NEGATIVE	107.5
16	5237537	40YEARS	FEMALE	DEGREE	KOKATNAR	1YEAR	B	B	D	C	D	A	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	16	5	75	80	50	34	34.59	POSITIVE	5.9
17	5185540	50YEARS	FEMALE	NONE	HIREKODI	4YEARS	D	C	E4	F	E1	B	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	7	26	10	75	75	60	49.5	49.61	NEGATIVE	1.1
18	1144747	35YEARS	FEMALE	DEGREE	BANHATTI	15YEARS	E	E	A	F	A	E	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	10	28	16	90	100	80	62	65.1	POSITIVE	31
19	2146675	29YEARS	MALE	DEGREE	BANHATTI	6YEARS	E	D	A	D3	A	C	A	-	A2B2	B	A	NO	YES	YES	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	26	15	80	90	70	57	57.52	NEGATIVE	5.2
20	5250012	28YEAR	FEMALE	NONE	KOTUR	5MONTHS	B	A	A	D3	C	A	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	9	26	14	80	90	75	56.5	56.95	POSITIVE	4.5
21	5207825	40YEARS	FEMALE	SECONDARY	KAKATNAR YALLAMANOWADI	5MONTHS	A	A	D	C	A	A	B	B	-	-	B	NO	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	11	1	50	70	50	24	-	POSITIVE	-
22	5259263	59YEAR	MALE	PREUNIVERSITY	GOUDAWAD	3MONTHS	B	A	D	D3	C	A	A	-	A3B1	B	B	YES	YES	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	9	18	12	75	80	50	43	43.06	POSITIVE	0.9
23	5243401	60YEAR	FEMALE	PRIMARY	HANDIYANER	5MONTHS	A	A	A	D3	C	A	A	-	A2B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	8	26	6	80	90	70	48	48.5	POSITIVE	9.4
24	4462107	53YEARS	FEMALE	SECONDARY	LOKA ATHANI	4.5YEARS	E	D	E4	F	A	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	19	8	75	80	60	41	41.17	NEGATIVE	1.7
25	4783837	30YEAR	FEMALE	PREUNIVERSITY	MALLAPURE,KITTUR	4YEARS	D	D	C	C	D	C	B	B	-	-	B	NO	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	9	11	0	25	30	10	15	-	POSITIVE	-
26	5210706	38YEAR	FEMALE	DEGREE	SHIGIHOLI	1.5YEARS	C	C	D	E1	C	B	A	B	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	18	8	70	80	50	39	44.12	POSITIVE	51.2
27	526777	55YEAR	FEMALE	PRIMARY	MALAMATHI	5MONTHS	A	A	D	E1	C	A	A	B	A1B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	9	27	11	80	90	70	54	-	POSITIVE	-
28	5268177	45YEAR	FEMALE	DEGREE	HUNNAR	3YEARS	C	B	D	C	A	B	B	B	-	-	B	NO	NO	NO	NO	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	9	24	10	85	90	75	50.5	-	POSITIVE	-
29	4276331	60YEAR	FEMALE	PRIMARY	HALEPETI TERDAL	5.5 YEAR	E	D	A	C	A	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	11	1	25	25	20	16.5	-	NEGATIVE	-
30	3138620	57YEAR	MALE	DEGREE	JUGAL,ATTHANI	10YEAR	E	E	D	E2	A	D	A	-	A3B1	B	A	YES	NO	YES	NO	PRESENT	ABSENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	9	27	11	80	90	70	54	-	POSITIVE	-
31	4916325	52YEARS	FEMALE	NONE	PACHAPUR	4YEARS	D	C	E1	F	E1	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	7	23	10	75	80	70	48	62.48	NEGATIVE	144.8
32	5209481	56YEAR	FEMALE	DEGREE	GANTMUR HORUGOPPA	14.5YEAR	E	E	E1	F	E1	E	B	B	-	-	B	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	7	22	6	90	100	90	47	-	NEGATIVE	-
33	5163090	62YEAR	FEMALE	DEGREE	CHIKODI	3YEARS	D	C	A	C	A	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	12	2	50	50	30	22	-	NEGATIVE	-
34	5290168	58YEAR	FEMALE	PREUNIVERSITY	MUTGA	6YEARS	D	C	A	D3	C	C	A	B	A3B1	B	B	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	9	25	12	90	90	80	54	-	POSITIVE	-
35	4710678	44YEAR	FEMALE	SECONDARY	KOTTALAGI	10YEAR	E	E	E1	F	D	E	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	9	14	2	50	75	50	28.5	-	POSITIVE	-
36	3404007	26YEAR	FEMALE	DEGREE	KANGRALI	5MONTHS	A	A	C	D3	C	A	A	-	A4B2	A	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	7	12	0	20	30	20	17	17.12	NEGATIVE	1.2
37	4695527	54YEAR	FEMALE	SECONDARY	IRANATTI	8YEARS	E	E	C	D3	A	D	A	-	A4B2	A	A	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	2	0	10	10	10	4	9.45	POSITIVE	6.3
38	3852328	56YEAR	FEMALE	NONE	AVARADI	5MONTHS	A	A	E1	F	E1	C	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	21	10	80	80	60	45	-	NEGATIVE	-
39	5259263	59YEAR	MALE	DEGREE	GOUDAWAD	4MONTHS	B	A	A	D3	A	A	A	-	A2B1	B	B	YES	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	9	4	50	50	30	21	21.09	NEGATIVE	0.9
40	4783837	30YEAR	FEMALE	DEGREE	MALLAPURE,KITTUR	2YEARS	C	C	E1	D3	C	B	A	-	A3B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	9	11	0	20	25	20	15.5	-	POSITIVE	-
41	2115638	31YEAR	MALE	POSTGRATUDE	BELLAD BAGEWADI	4YEARS	D	C	D	D3	C	C	A	-	A3B1	B	A	YES	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	19	4	80	90	70	39	39.86	NEGATIVE	6.8
42	5403356	71YEAR	FEMALE	NONE	PANCHAPUR	7YEARS	E	D	D	D3	A	D	A	-	A1B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	10	23	11	85	90	75	50	76.47	POSITIVE	238.6
43	970837	66YEAR	FEMALE	NONE	IRANATTI	12YEARS	E	D	E4	F	E4	D	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	14	5	60	75	50	31	36.3	NEGATIVE	48

47	5493266	25YEAR	MALE	PREUNIVERSITY	ADONI	8YEARS	E	E	D	D3	C	E	A	-	A2B1	B	B	YES	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	9	26	8	60	70	50	46	-	POSITIVE	-
48	5319333	45YEAR	FEMALE	NONE	ITAGI	1YEARS	B	B	E4	F	D	B	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	16	6	70	80	50	35	35.48	POSITIVE	3.9
49	916109	60YEAR	FEMALE	NONE	BASURA	30YEARS	E	E	E1	D3	C	E	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	6	24	12	50	60	30	45	45.5	NEGATIVE	5
50	4077376	54YEAR	FEMALE	SECONDARY	MANJARI	3YEARS	D	C	E4	A	E4	B	B	B	-	-	B	NO	NO	YES	NO	ABSENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	8	8	2	70	80	40	22	25.2	POSITIVE	0.7
51	5314518	58YEARS	FEMALE	NONE	GODIHAL	2YEARS	C	C	D	C	A	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	18	6	70	80	60	38	41.9	NEGATIVE	39
52	5298449	56YEAR	FEMALE	NONE	DEVGIRI	28YEARS	E	E	C	E	E1	E	A	A	A5B2	A	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	7	2	1	50	50	25	10.5	11.36	POSITIVE	8.6
53	5185143	56YEARS	FEMALE	NONE	SUTAGATTI	1YEAR	C	C	E1	F	A	B	B	B	-	-	B	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	8	1	10	25	10	12.5	13.86	POSITIVE	13.6
54	4724619	42YEARS	FEMALE	PRIMARY	KODACHWAD	1.5YEARS	C	B	C	D3	C	B	A	-	A4B2	A	B	NO	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	3	0	30	50	10	9	11.06	POSITIVE	20.6
55	4297452	36YEARS	FEMALE	PREUNIVERSITY	AMBADGATTI	3YEARS	D	C	A	D3	C	C	A	-	A2B1	B	A	NO	NO	YES	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	10	13	8	50	60	30	30	30.58	POSITIVE	5.8
56	963837	61YEAR	FEMALE	NONE	TANAVADI	10YEARS	E	E	A	F	A	E	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	7	16	8	80	90	70	40	46.46	NEGATIVE	64.6
57	962944	62YEAR	FEMALE	NONE	AMATUR	20YEARS	E	E	E1	F	A	E	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	8	6	3	50	60	30	18	19.26	POSITIVE	12.6
58	4658078	74YEARS	MALE	NONE	KHANGAON	1YEAR	C	C	A	D3	C	B	A	-	A2B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	PRESENT	ABSENT	7	25	11	80	90	70	52	73.69	NEGATIVE	216.9
59	4694336	56YEAR	FEMALE	NONE	KHANATTI	1YEAR	B	B	E1	D3	C	B	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	22	10	70	80	70	47	55.27	POSITIVE	82.7
60	5070916	45YEAR	FEMALE	NONE	HUNNAR	1YEAR	C	C	A	D3	C	C	A	B	A3B1	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	10	24	4	75	80	70	43	50.42	POSITIVE	74.2
61	4790587	29YEARS	FEMALE	PREUNIVERSITY	TURMARI	1YEAR	B	B	E1	C	E1	B	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	16	10	75	80	75	41	-	NEGATIVE	-
62	5473906	76YEAR	MALE	NONE	MUDDEBIHAL	3YEARS	D	D	D	D3	D	C	A	-	A5B2	A	B	NO	NO	NO	YES	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	7	12	2	30	30	25	19.5	-	NEGATIVE	-
63	3141376	45YEAR	FEMALE	NONE	SHANKARHANI	7YEARS	E	E	E4	F	E1	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	17	11	80	90	70	44	-	POSITIVE	-
64	4792358	63YEAR	MALE	NONE	CHIGULE	1YEAR	B	B	B	D3	C	A	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	11	6	60	75	50	29.5	29.55	NEGATIVE	222.2
65	5548871	42YEAR	FEMALE	PRIMARY	ARALAGUNDI GADHINGLAJ	5YEARS	D	D	E4	F	E4	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	26	11	90	100	80	55	69.02	NEGATIVE	-
66	972781	45YEAR	FEMALE	NONE	KADOLI	1YEAR	B	B	C	D3	C	B	A	-	A4B2	A	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	9	0	60	75	50	21	-	POSITIVE	-
67	972927	56years	FEMALE	NONE	JAMKHANDI	1YEAR	B	B	A	B	A	B	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	10	21	8	70	90	70	45	-	POSITIVE	-
68	5073941	50YEARS	FEMALE	NONE	HOOLI	1YEAR	B	B	C	D3	C	B	A	-	A4B2	A	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	11	1	10	25	10	15	21.19	NEGATIVE	56.9
69	5414006	61YEAR	FEMALE	NONE	TERDAL	25YEAR	E	E	E1	F	A	D	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	PRESENT	PRESENT	10	24	11	90	100	80	53	-	POSITIVE	-
70	5185840	35YEARS	FEMALE	PREUNIVERSITY	GOUNDWAD	10YEARS	E	E	A	D3	A	D	A	-	A4B2	A	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	8	9	1	25	25	20	14	-	POSITIVE	-
71	5308615	29YEARS	FEMALE	DEGREE	DANDELI	5YEARS	D	D	E1	F	D	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	10	6	25	25	25	21	-	NEGATIVE	-
72	3880619	22YEAR	FEMALE	DEGREE	NEGINHAL	3YEARS	D	D	D	C	A	C	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	16	6	50	60	30	31	34.01	NEGATIVE	30.1
73	5304667	40YEARS	FEMALE	SECONDARY	ITANYL	2YEARS	C	C	E1	F	C	C	B	B	-	-	A	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	8	6	4	50	50	30	18	-	POSITIVE	-
74	5335991	50YEARS	FEMALE	SECONDARY	BADAR	5YEARS	D	D	E1	F	A	D	A	B	A2	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	10	23	11	90	100	90	53	53.35	POSITIVE	3.5
75	5192635	40YEARS	MALE	PREUNIVERSITY	KUTHALI	5MONTHS	B	B	A	C	A	B	B	B	-	-	B	YES	NO	NO	NO	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	21	10	70	80	80	47	-	NEGATIVE	-
76	5331437	62YEAR	FEMALE	NONE	SUMIRWADI	2YEARS	C	C	D	D4	D	B	A	-	A3D1	B	A	NO	NO	NO	NO	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	11	1	50	50	30	20	20.06	POSITIVE	0.6
77	5288531	65YEARS	MALE	NONE	JUGAL,ATTHANI	7YEARS	E	E	E1	F	A	D	B	B	-	-	A	YES	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	PRESENT	ABSENT	9	22	12	95	100	90	53	-	POSITIVE	-
78	4336603	56YEAR	FEMALE	PRIMARY	NANDIKURALI,RAIBAG	5YEARS	D	D	D	E2	D	D	A	A	A1B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	20	8	60	75	50	40	-	NEGATIVE	-
79	4306591	55YEAR	FEMALE	NONE	VIRAPUR	2YEARS	C	C	A	E1	C	A	A	A	A3B1	B	B	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	18	4	50	60	50	33	33.16	NEGATIVE	1.6
80	5232923	34YEARS	FEMALE	DEGREE	HARALAKATTI SAVADATTI	1YEARS	B	B	D	E1	C	B	A	A	A3B1	B	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	PRESENT	ABSENT	10	16	8	75	80	60	38	-	POSITIVE	-
81	4967529	60YEAR	MALE	PRIMARY	SAIDAPUR	14YEARS	E	D	A	D1	A	D	A	-	A1	B	B	YES	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	8	8	2	50	50	30	18	-	POSITIVE	-
82	5196560	30YEAR	FEMALE	SECONDARY	BEKKERI,RAIBAG	3YEARS	D	C	A	E1	A	A	A	A	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	21	17	75	90	80	55	55.81	NEGATIVE	85
83	5113394	47YEAR	FEMALE	PRIMARY	BORGAON	4YEARS	D	D	D	A	D	C	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	18	4	50	70	50	34	-	NEGATIVE	-
84	4686370	26YEAR	MALE	PREUNIVERSITY	AUARKHOD	1YEAR	B	B	C	E3	C	B	A	A	A4B2	A	A	NO	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	2	1	10	10	10	5	9.32	POSITIVE	179.7
85	3193016	48YEAR	FEMALE	PRIMARY	SAVADATTI	1YEAR	B	B	D	E2	C	A	A	-	A3B1	B	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	7	14	5	70	75	60	29.5	-	NEGATIVE	-
86	4678289	19YEAR	FEMALE	NONE	SHINAL	1YEAR	B	B	D	D3	C	B	A	-	A3B2	B	B	NO	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	11	0	30	50	30	19	19.33	POSITIVE	1
87	4815721	35YEARS	FEMALE	PRIMARY	RAYGOLI BUDRUK	35YEAR	E	E	A	D3	C	D	A	-	A2B1	B	B	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	PRESENT	PRESENT	9	15	2	60	75	50	29.5	31.6	POSITIVE	71.1
88	588163	44YEAR	FEMALE	SECONDARY	BHUTRAMHATTI	5YEARS	D	B	A	C	A	B	B	B	-	-	A	NO	NO	NO	NO	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	18	6	80	90	70	40	-	POSITIVE	-
89	2214661	28YEAR	MALE	DEGREE	HANDIGANUR	1YEAR	A	A	A	D3	C	A	A	-	A2B1	B	B	YES	NO	NO	NO	PRESENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	12	2	50	50	30	22	22.6	NEGATIVE	6
90	395984	47YEAR	FEMALE	NONE	SONATTI	4YEARS	D	C	E1	F	E1	C	B	B	-	-	A	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	24	6	70	80	60	44	-	POSITIVE	-
91	5393463	73YEAR	FEMALE	NONE	KUNDARGI	6.5YEARS	E	D	E1	F	E1	C	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	7	16	5	70	75	50	33.5	33.95	NEGATIVE	4.5
92	3919057	71YEAR	FEMALE	NONE	KONNUR	12YEARS	E	E	E4	F	D	D	B	B	-	-	B	NO	NO	NO	NO	PRESENT	PRESENT	PRESENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	7	21	6	70	80	70	42	-	NEGATIVE	-

96	4543776	65YEARS	FEMALE	NONE	HUKERI	7YEARS	E	D	E1	F	E1	D	B	B	-	-	A	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	8	2	60	70	50	22	22.62	POSITIVE	6.2
97	4812591	67YEARS	FEMALE	NONE	SAVADDTI	2YEARS	C	C	A	F	A	C	B	B	-	-	A	NO	NO	NO	NO	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	6	2	1	60	70	30	13	13.59	POSITIVE	5.9
98	4991645	60YEAR	MALE	NONE	TERDAL	4YEARS	D	D	E1	F	E1	C	B	B	-	-	B	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	8	4	2	50	50	30	14	14.22	POSITIVE	36.4
99	4762597	42YEARS	MALE	PRIMARY	BASURA	2YEARS	C	C	C	D3	A	B	A	-	A4B2	A	A	NO	YES	YES	NO	ABSENT	PRESENT	ABSENT	ABSENT	PRESENT	ABSENT	ABSENT	ABSENT	6	2	1	25	50	20	10	10.96	POSITIVE	30.6
100	4780171	36YEARS	FEMALE	DEGREE	TUMARI	11YEARS	E	E	E4	F	D	D	B	B	-	-	B	NO	NO	NO	NO	ABSENT	PRESENT	PRESENT	ABSENT	ABSENT	ABSENT	ABSENT	ABSENT	10	8	6	60	75	50	26	39.56	POSITIVE	6.3

QUESTIONNAIRE

1)A)<6MONTH,B)6MONTH-1YEAR,C)1-2YEAR,D)2-5YEAR,E)>5YEAR

2)A)<6MONTH,B)6MONTH-1YEAR,C)1-2YEAR,D)2-5YEAR,E)>5YEAR

3)A)ORTHOPEDICIAN PRACTIONER,B)MEDICINE PRACTIONER,C)RHEUATOLOGIST,D)GENERAL PRACTIONER,E)OTHERS -1-AYUREVEDIC PRACTIONER,2-PHYSIOTHEREPIST,3-PRACTITIONERS OF ALTERNATIVE SYSTEM OF MEDICINE,4-HOMEOPATHIC PRACTIONER

4)A)ONLY NSAIDS,B)ONLY GC,C)NSAIDS AND DMARDS,D)DMARDS-D1MTX,D2HCQS,D3MTX+HCQS,D4MTX+SSZ,E)DMARDS+OTHERS-E1MTX+HCQS+GC,E2MTX+NSAIDS/GC,E3MTX+HCQS+LFN/SSZ+GC

5)A)ORTHOPEDICIAN PRACTIONER,B)MEDICINE PRACTIONER,C)RHEUATOLOGIST,D)GENERAL PRACTIONER,E)OTHERS OTHERS- 1-AYUREVEDIC PRACTIONER,2-PHYSIOTHEREPIST,3-PRACTITIONERS OF ALTERNATIVE SYSTEM OF MEDICINE,4-HOMEOPATHIC PRACTIONER

6)A)<6MONTH,B)6MONTH-1YEAR,C)1-2YEAR,D)2-5YEAR,E)>5YEAR

7)A)DMARDS,B)ALTERNATIVE MECIATION OR OTHER DRUGS

8)A)EFFECTIVE,B)NOT EFFECTIVE

9)A)METHOTREXATE-1)5MG,2)7.5MG,3)10MG,4)15MG,5)20MG,6)25MG,B)HYDOXYCHOLROQUINE-1)200MG,2)300MG,3)400MG,C)LEFLONAMIDE-1)10MG,2)20MG ,2)400MG C)SULFASALAZINE ,1)500MG,2)1000MG,D)LEFLONAMIDE,1)10MG,2)20MG

10)A)OPTIMUM,B)SUBOPTIMUM

11)A)YES,B)NO

PHYSICAL EXAMINATION

1)TENDRENESS

2)STIFFNESS

3)SWOLLEN JOINT

4)DEFORMITY

5)PAIN OF MOTION

6)LIMITATION OF MOTION

7)EXTRA ARTICULAR MANIFESTATION

OPTIUMUM DOSE	SUB OTIMUM DOSE OF MTX
HCQS-400MG	<12.5MG
SSZ-1000MG	
LFN-20MG	
MTX>12.5MG	
EDUCATION	
NONE=ILLITERATE	

DISEASE DURATION A)<1YEAR,B)1 TO 2 YEAR,C)2 TO 10 YEAR,D)>10 YEAR

CDAI REFRENCE VALUE	SDAI REFRENCE VALUE
REMISSION <2.8	REMISSION<3.3
LOW>2.8-10	LOW>3.3-11
MODERATE>10-22	MODERATE>11-26
HIGH>22	HIGH>26

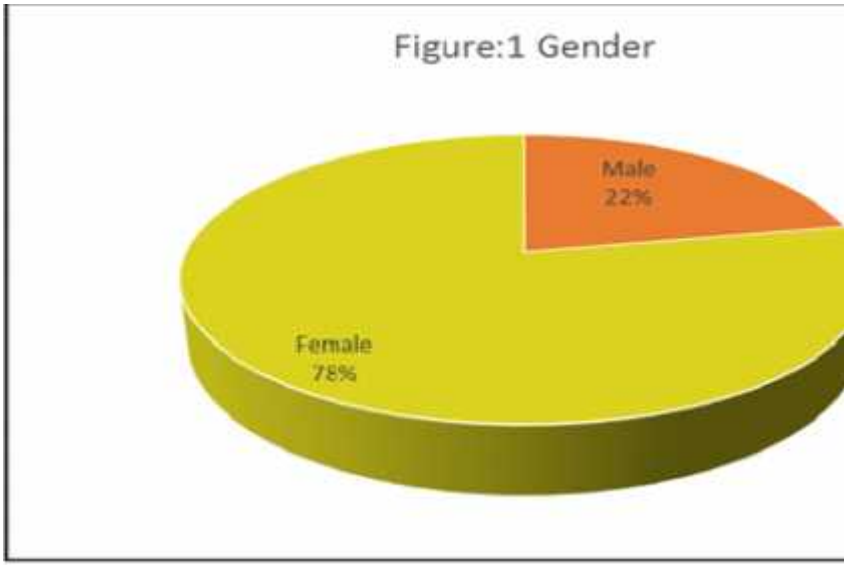


Figure:1 Gender
Male
22%
Female
78%

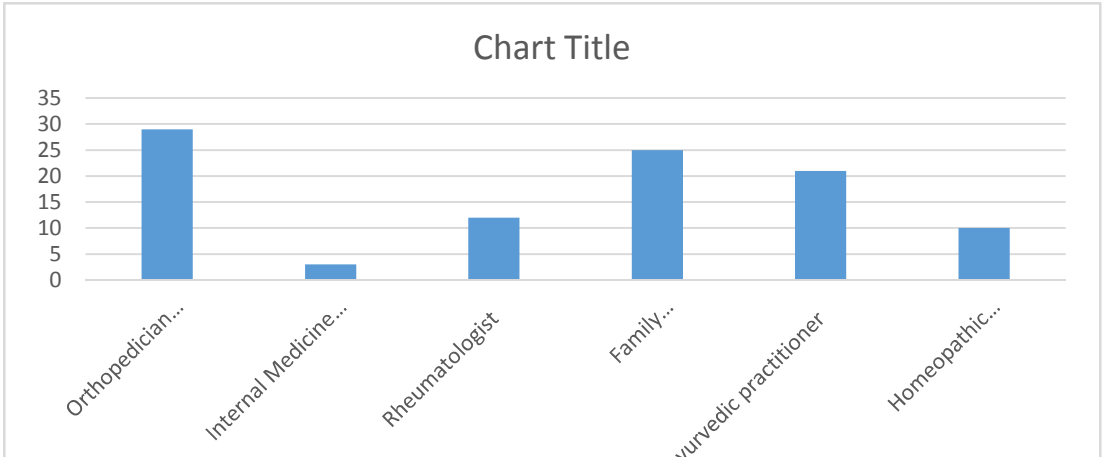
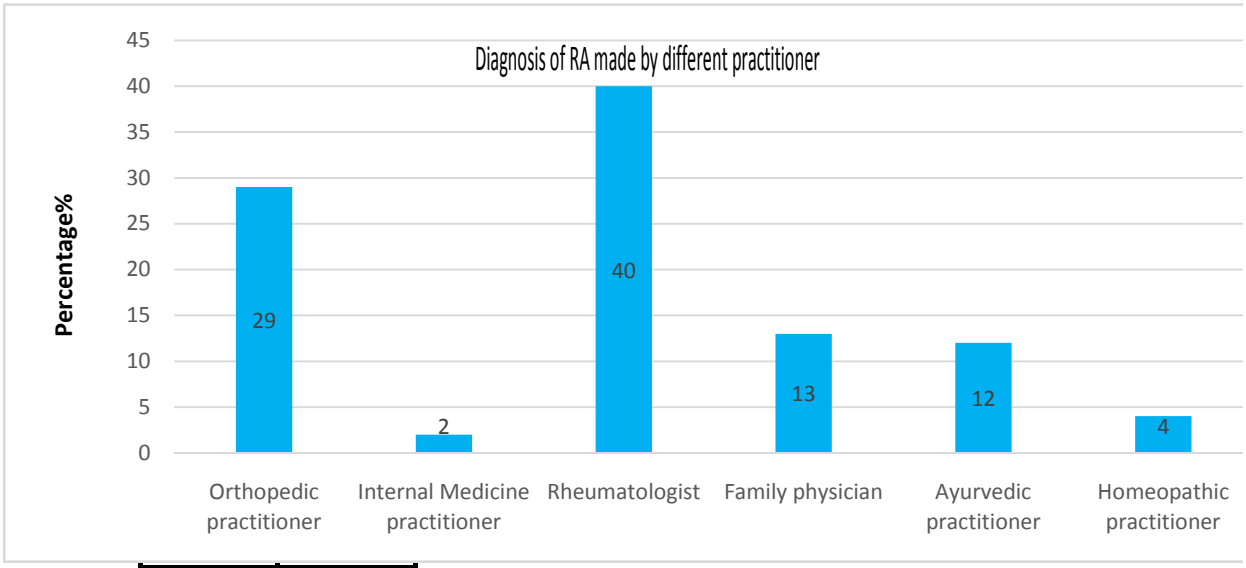


Chart Title
35
30
25
20
15
10
5
0
Orthopedician...
Internal Medicine...
Rheumatologist
Family...
urvedic practitioner
Homeopathic...

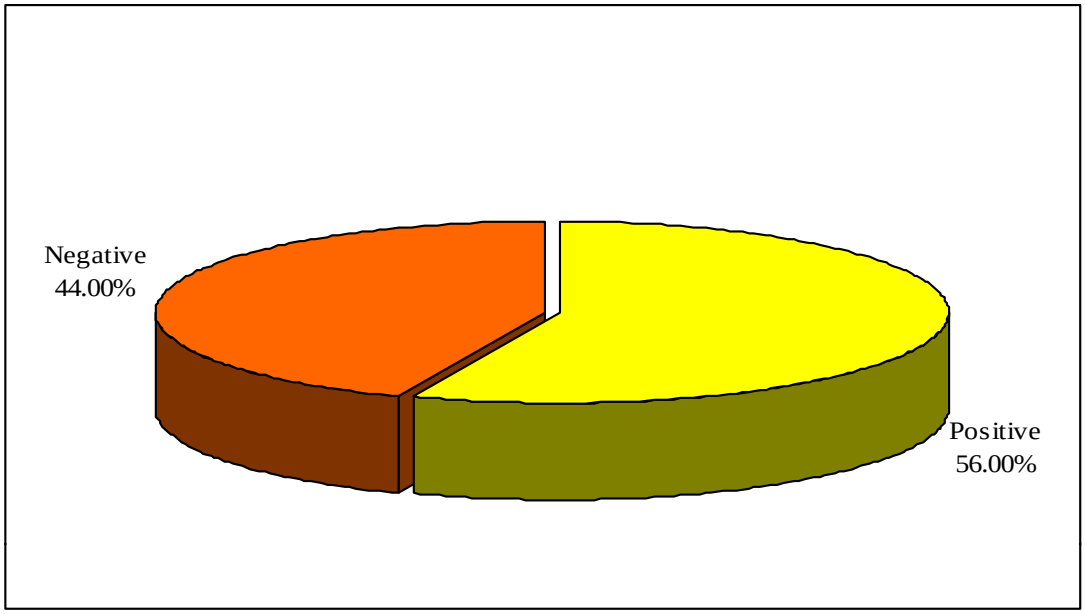
Prior care giver	
Orthopedi	29
Internal M	3
Rheumato	12
Family ph	25
Ayurvedic	21
Homeopat	10
Total	100

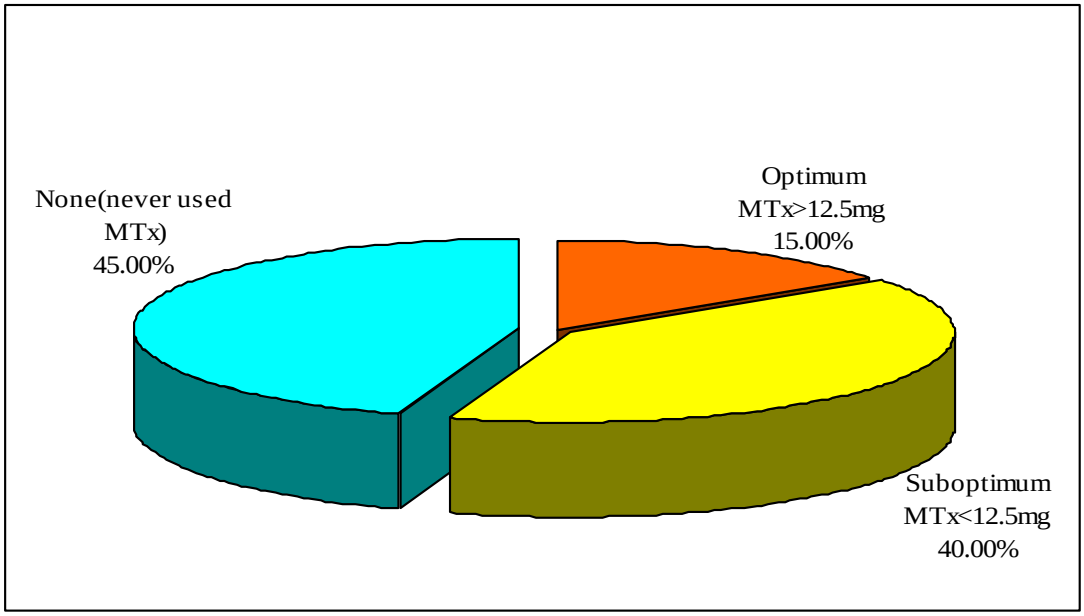
Prior medication use	Total
Only NSAIDS(A)	2
Only GC(B)	1
NSAIDS+GC(C)	12
MTX(D1)	4
HCQS(D2)	2
MTX+HCQS(D3)	36
MTX+LFN(D4)	2
MTX+HCQS+GC(E1)	7
MTX+NSAIDS/GC(E2)	5

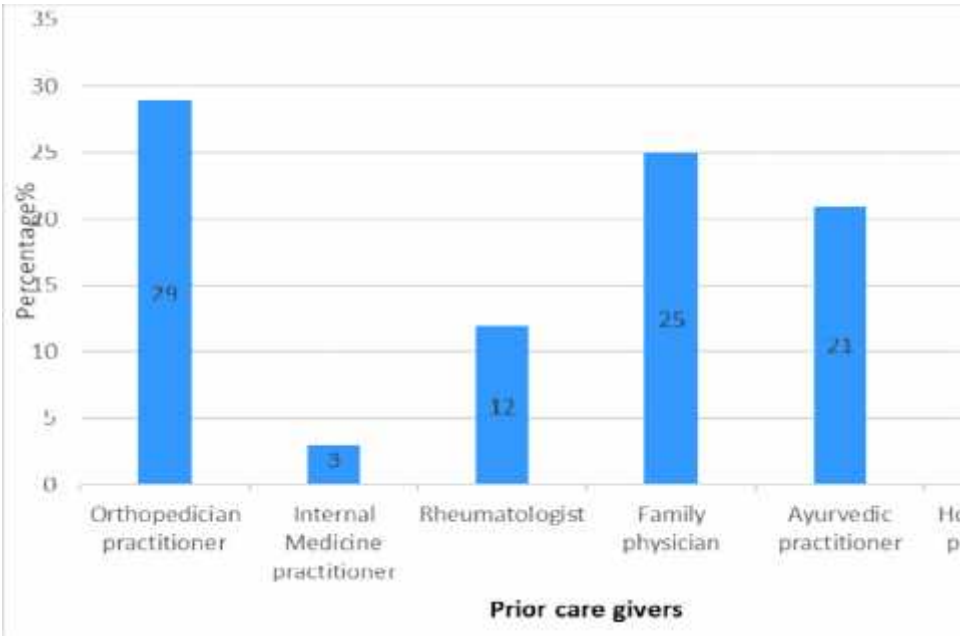
MTX+HCQS+LFN/SSZ+GC(E3)	1
Alternative medicine	28
Total	100



Family ph	13
Ayurvedic	12
Homeopat	4
Total	100


Negative
44.00%
Positive
56.00%


None(never used
MTx)
45.00%
Optimum
MTx>12.5mg
15.00%
Suboptimum
MTx<12.5mg
40.00%


35
30
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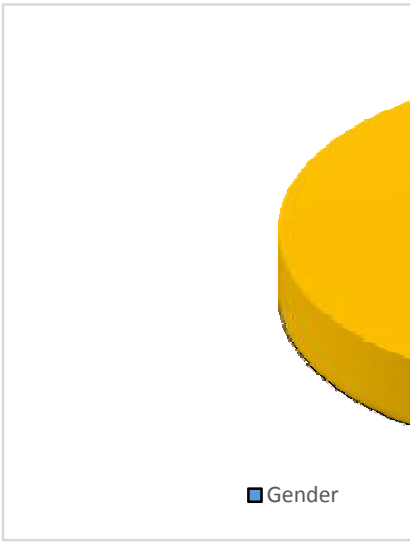
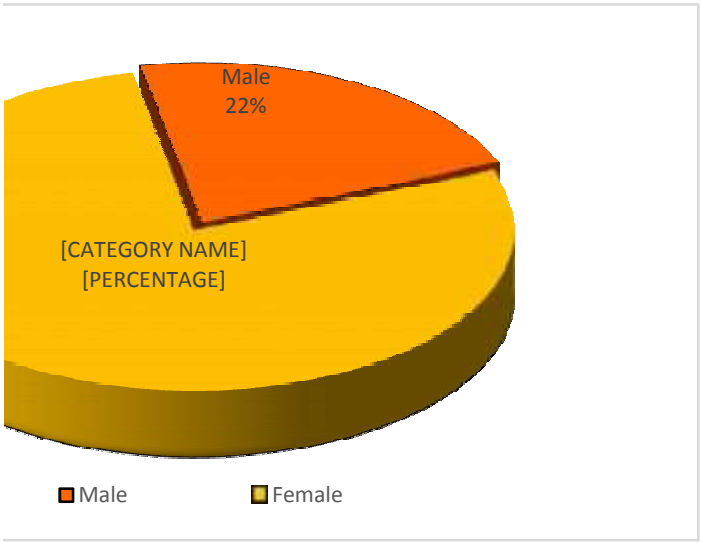
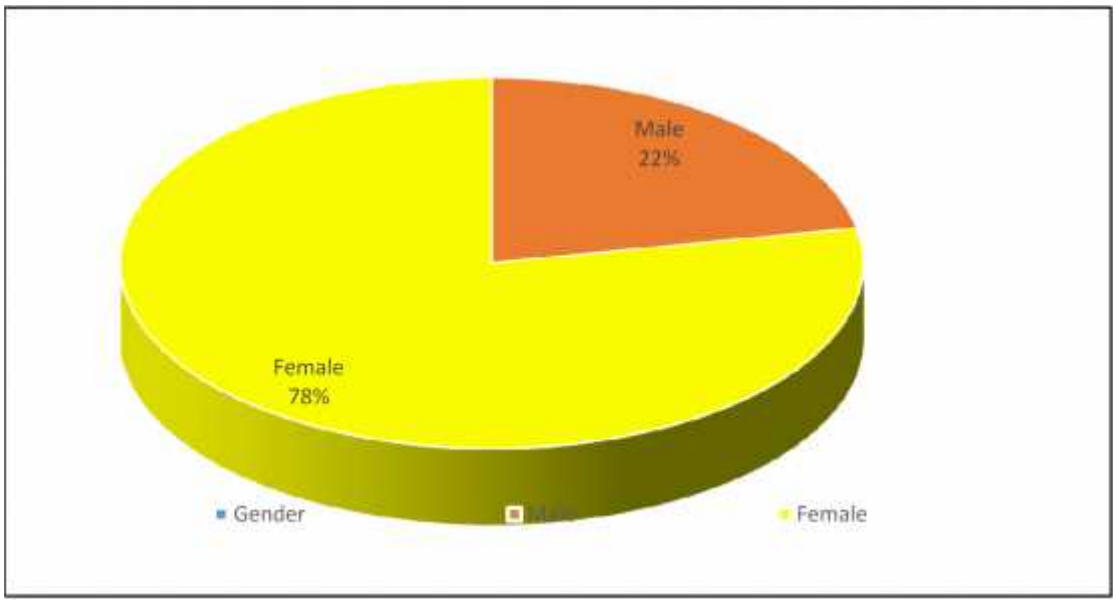
Percentage%
29
3
12
25
21
Orthopedician practitioner
Internal Medicine practitioner
Rheumatologist
Family physician
Ayurvedic practitioner
Prior care givers

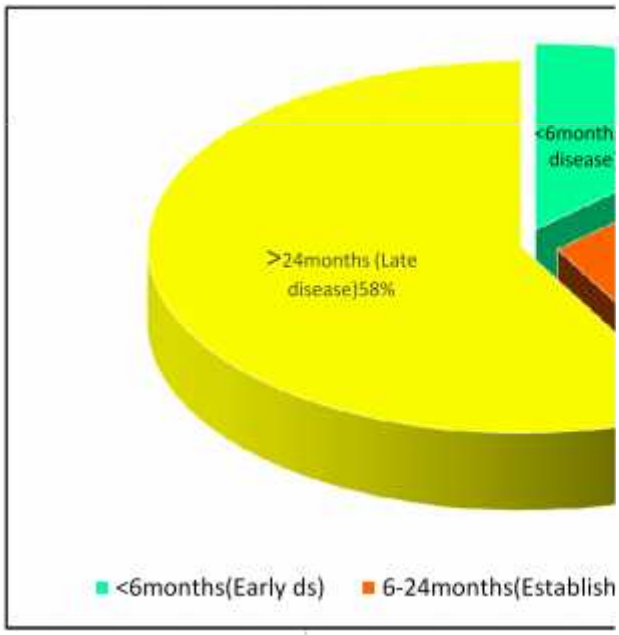

10
omeopathic
ractitioner

Gender		
Male	22	22
Female	78	78




Male
22%
[CATEGORY NAME]
[PERCENTAGE]
Male
Female

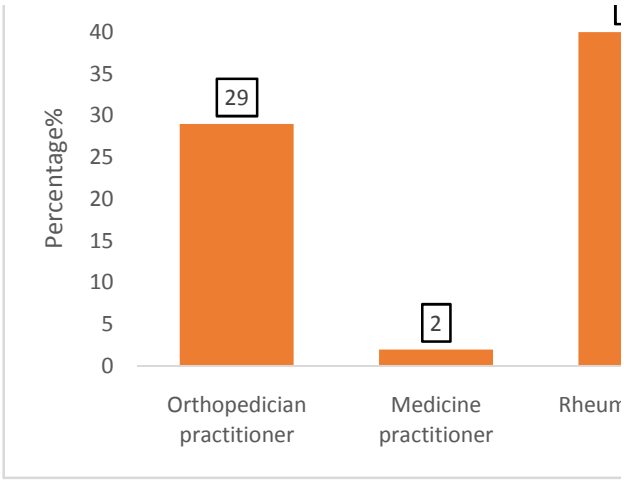




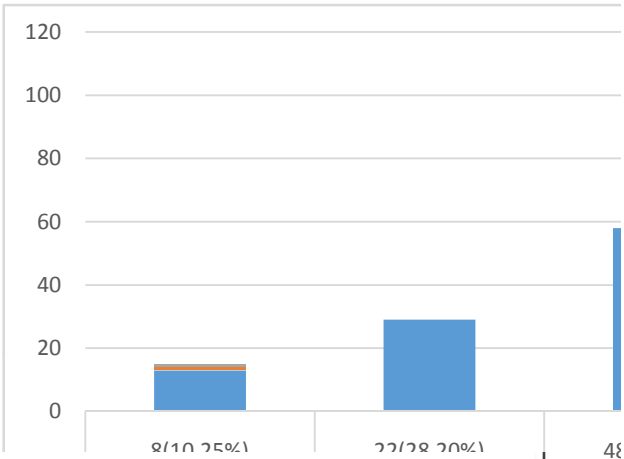
<6months	13
6-24montl	29
>24month	58

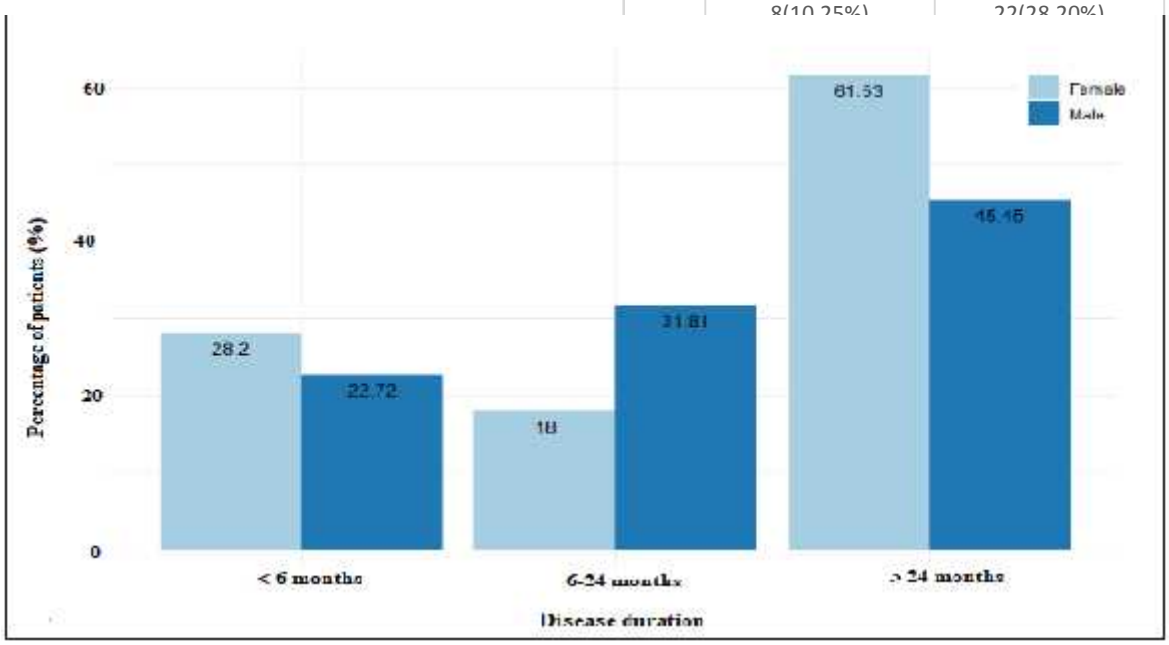
Diagnosis in

DIAGNOS	Total
Orthopedi	29
Medicine	2
Rheumato	40
General pr	12
Ayurvedic	13
Homeopat	4



Delay in n	Male	Female	Total
<6months	5(22.72%)	8(10.25%)	13
6-24montl	7(31.81%)	22(28.20%	29
>24month	10(45.45%	48(61.53%	58
Total	22(100%)	78(100%)	100





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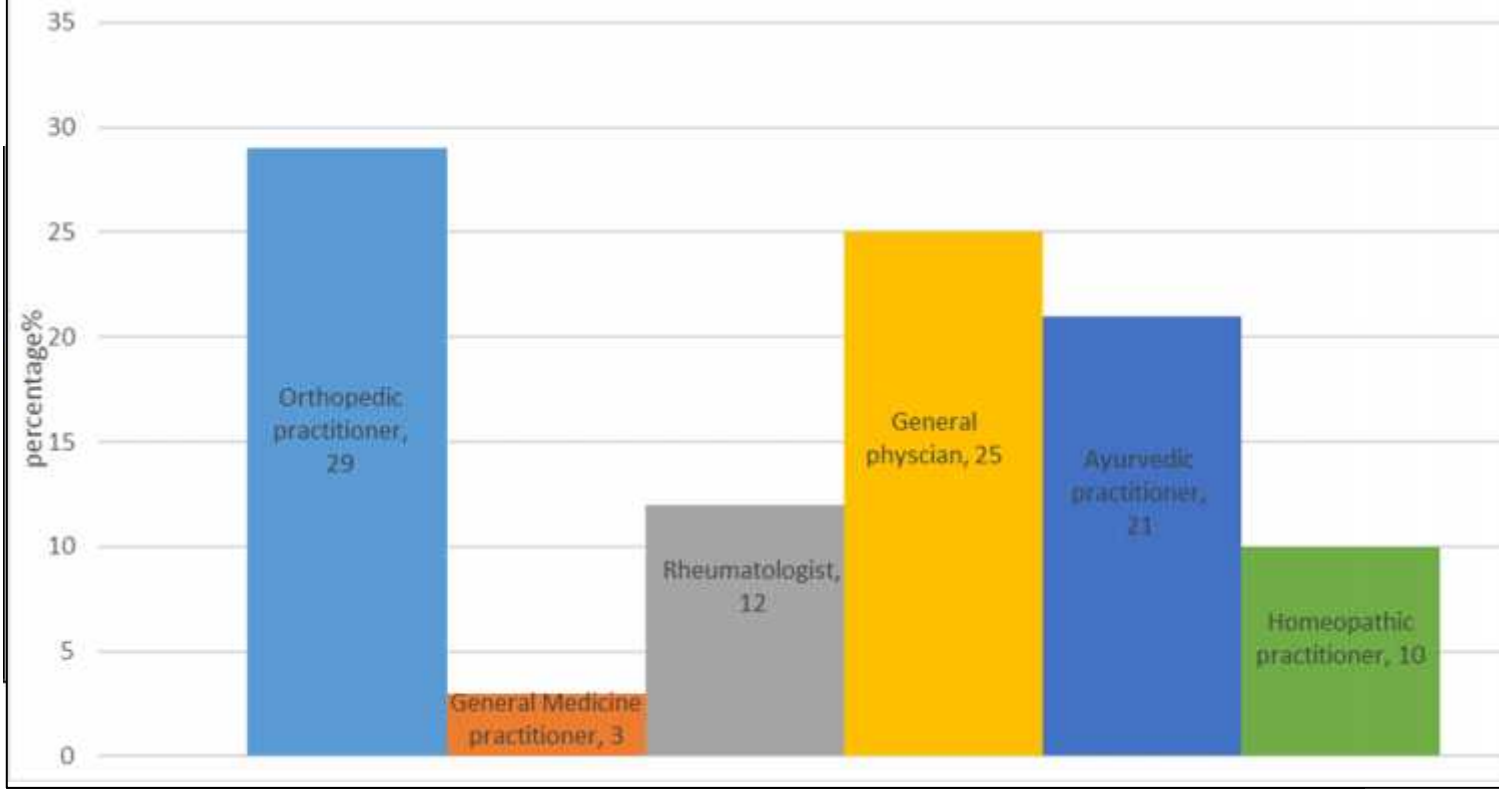

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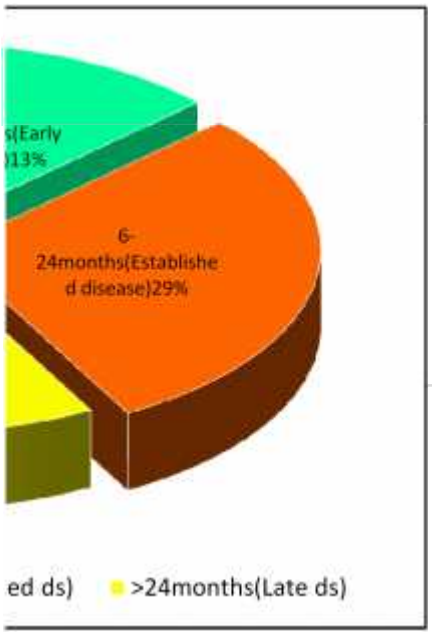
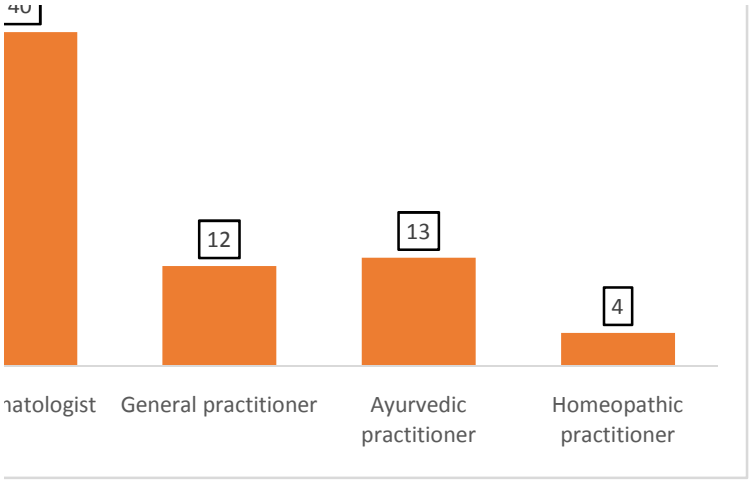
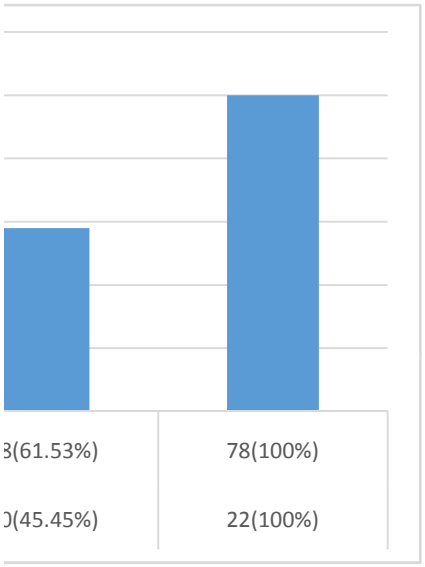
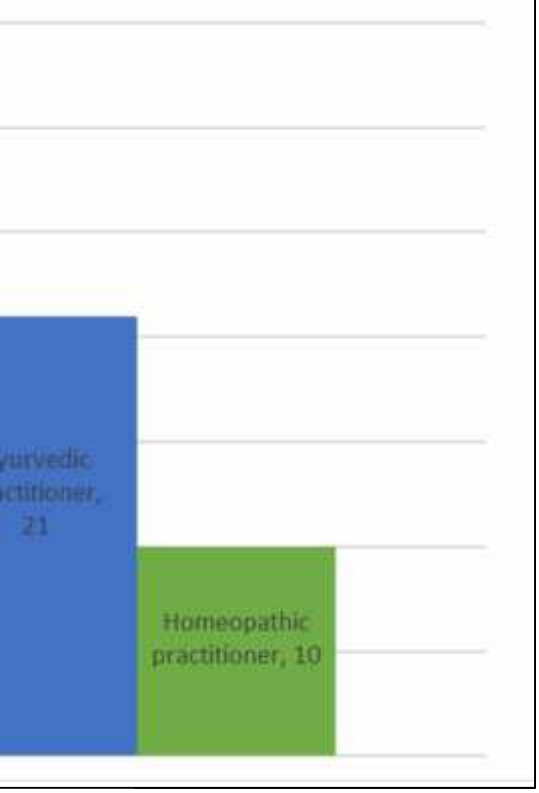


RA patients made by

40


40
12
13
4
natologist
General practitioner
Ayurvedic practitioner
Homeopathic practitioner


3(61.53%)
78(100%)
0(45.45%)
22(100%)


yurvedic
ctitioner,
21
Homeopathic
practitioner, 10