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A Study on Ocular Manifestations of Rheumatoid Arthritis in a Tertiary Care Hospital in South India

KEYWORDS: Rheumatoid Arthritis, Ocular Manifestations, Keratoconjunctivitis, Rheumatoid Factor

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ABSTRACT *Aim of this study was to know the incidence of ocular manifestations in patients with rheumatoid arthritis. A total of 100 patients were selected and detailed examination was done. Investigations like Schirmer's test, tear film break up test and Rose Bengal test were performed. Analysis of the findings was done. Results showed ocular manifestations in 35% of the patients with keratoconjuctivitis sicca being the commonest eye manifestation.*

INTRODUCTION

Rheumatoid arthritis (RA) is a common chronic often debilitating autoimmune inflammatory disease of the joints and multiple organs. The exact oetiopathogenesis of RA is not yet known. The prevalence of RA worldwide is around 0.8%(0.3-2.1%).The extra-articular manifestations have been documented more often in sero-positive rather than sero-negative patients [1].

Ocular manifestations are one of the important extra-articular manifestations of rheumatoid arthritis. The predominant ocular manifestations of clinical importance include keratoconjunctivitis sicca, episcleritis, scleritis, keratitis, glaucoma and retinal vasculitis. Ocular manifestations occur independently or in association with a disease exacerbation. At times, ocular manifestations herald ominous systemic involvement. Ocular manifestations occur in 25% of patients with RA [2]. At many instances, ocular examination of the patients show sub-clinical ocular disease such as Keratoconjunctivitis sicca (KCS), despite the patient being asymptomatic. This gains importance because; certain ocular procedures such as refractive surgeries are relatively contraindicated in such patients.

There are a few studies in India about ocular manifestations in RA and inflammatory activity that led to ocular diseases in RA patients. This study aims to investigate this issue in patients diagnosed with rheumatoid arthritis in a tertiary care hospital in South India.

AIM OF THE STUDY

1. To study the prevalence of various ocular manifestations in patients with RA.
2. To study the influence of rheumatoid factor in the occurrence of ocular manifestations.

MATERIALS AND METHODS

INCLUSION CRITERIA

A total of 100 patients who attended the rheumatology outpatient department in a tertiary care hospital who were diagnosed with rheumatoid arthritis were selected for the present study during the period of November 2010 – November 2011.

EXCLUSION CRITERIA

Patients who had a history suggestive of Tuberculosis, Hansen's disease, Gout, Reactive Arthritis were excluded from the study. Similarly, patients with the evidences suggestive of SLE, Sjogren's disease and vasculitis were also excluded in order to prevent false positives in the study.

Patients with the history of any ocular infection, ocular surgery and trauma were also excluded.

EXAMINATION

First, the selected patients were thoroughly inspected under diffuse light. Then, the whole of anterior chamber of both the eyes were thoroughly examined under slit lamp and the patients who exhibited signs of episcleritis, scleritis, pterygium, keratitis and posterior subcapsular cataract were noted. Similarly, posterior chamber of both the eyes were visualized separately using direct ophthalmoscope. The posterior chamber was explored to diagnose choroid nodules, retinal vasculitis and retinal detachment. Further, the intra ocular pressure was recorded using indentation tonometry to document any elevation in the same.

As a part of the investigation, the tear film adequency was tested using Schirmer's test and its integrity was analysed using tear film break up test (BUT). Finally, the presence of dry eye was confirmed using Rose Bengal test. The ocular findings in all the 100 patients were documented and analysed.

The continous variables such as age, disease and treatment duration were tested for normality using Kolmogorov-Smirnov tests. Furthermore, comparison of the continuous variables between two groups divided based on presence and absence of ocular manifestations were analysed using non parametric Mann-Whitney U test (Independent samples T test). Finally, the comparison of proportions between two groups (Seropositive & seronegative, presence and absence of X-ray changes) was analysed using 'Logistic regression' and chi-square test. All the tests were performed using SPSS (Statistical package for social sciences) PASW 18.0.

RESULTS AND OBSERVATIONS:

General characteristics:

The age, sex distribution of patients included in the present study has been represented in table 1. The mean and standard deviation of age included in the present study is 45.51±9.99. A total of 13 males and 87 females were included.

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Table 1: Age and sex distribution of RA patients in the present study.

Age (Years)	No. of patients (n=100) n(%)	Sex (M:F)n(%)
20-30	9(9)	2:7
31-40	27(27)	4:23
41-50	37(37)	3:34
51-60	21(21)	3:18
61-72	6(6)	1:5

OCULAR MANIFESTATIONS

Ocular manifestations were noted in 35 patients(35%) of the study population .

Out of the 35 patients, 33 patients(33%) had keratoconjunctivitis sicca, 4 had episcleritis , 2 had scleritis, 3 had keratitis, 1 had glaucoma and 7 had posterior subcapsular cataract.

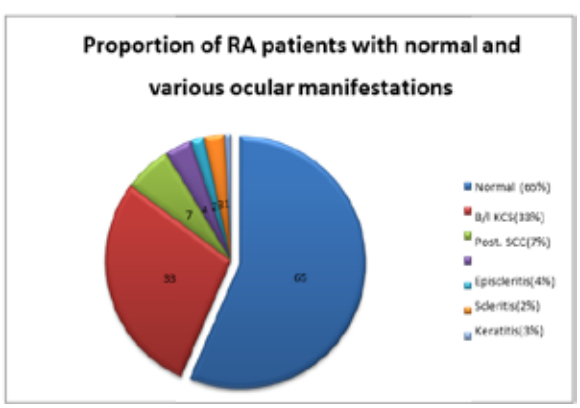


Figure 1 : Proportion of patients with various ocular manifestations

In some of the RA patients, ocular manifestations were found to overlap with each other. It was observed that, 7 patients had coexistent B/L KCS and Posterior subcapsular cataract, 2 patients had keratitis along with KCS and 1 patient had coexistant episcleritis with the latter. 2 patients had episcleritis along with KCS and finally, 1 patient had a combination of scleritis, KCS and glaucoma.

Duration of disease Versus Ocular manifestations:

It was observed that as the duration of the disease increases, more patients presented with ocular problems. In >5yrs duration group, 100% of the patients had ocular manifestations whereas, in 1-5yrs group 39.5% and ≤1yr group 12.1% had ocular manifestations.(Figure2)

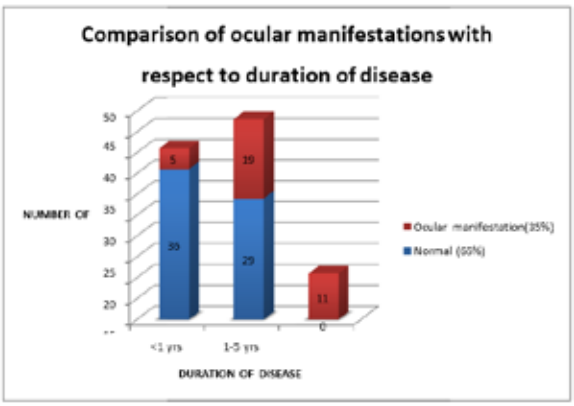
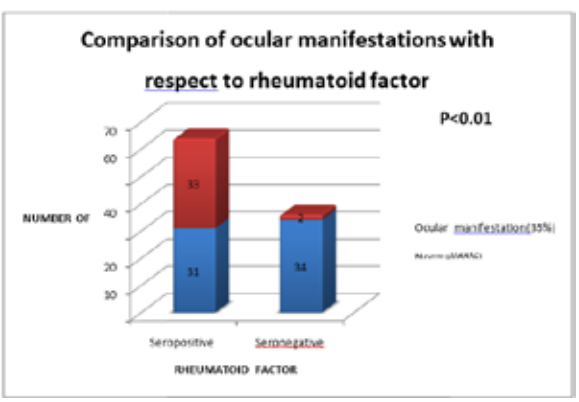


Figure 2: Comparison of ocular manifestations with duration of RA

Comparison of ocular manifestations with seropositivity:

Out of 100 patients included in the study, 64 patients had positive rheumatoid factor. 33 seropositive patients (51.6%) presented with the ocular manifestations when compared 2 sero-negative patients (5.6%).(Figure 3). The difference is statisticallysignificant (P<0.01).



DISCUSSION:

34% of the patients with rheumatoid arthritis in the present study have been identified to have ocular manifestations. This incidence is comparable to the previous studies[3,4] in which the incidences were 39% and 27.2% respectively. Conversely, some studies[5] quoted an incidence as low as 6.2% and 20.8%[6]. The relatively high incidence of the present study could be attributed to the diagnostic criteria which were based on the investigation findings rather than patient complaints. The above mentioned studies with low incidence of

ocular manifestations were designed as retrospective studies based on the case history.

33% of the patients in the present study had Keratoconjunctivitis sicca. 94.3% patients with ocular findings had dry eye and hence it is the commonest ocular manifestation witnessed. Incidence of keratoconjunctivitis sicca as published by different authors is as follows - Reddy et al.,329%, Zlatanovic et al.,427.2%, Williamson et al.,614.7%, Ericson and Sundmark721% and Sheran8 40%.

Hence incidence in this study correlated well with the previous studies in which keratoconjunctivitis sicca was found in 10-40% of the patients. 23 out of 33 patients were

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asymptomatic and hence indicates that major burden of ocular manifestations reflects the submerged portion of iceberg in the RA population.

Posterior subcapsular cataract was the next common ocular finding which was present in 7 RA patients out of 100 patients. Previous study has clearly highlighted the causal relationship between the cataract and steroid therapy rather than the disease per se[9]. In the present study, the mean duration of treatment was 1.72 years with the exception of two patients who had been on steroid treatment for 10yrs and 20 yrs respectively. The mean dosage of steroid treatment administered in this present study is 10mg/day. The result of the present study contradicts the previous literature, which shows 60% prevalence of posterior subcapsular cataract in patients on long term steroid therapy (mean duration:3.83yrs) with mean dosage of 10-15mg/day[63]. Hence, the discrepancy in the results could be attributed to the significantly less duration of treatment as well as the relatively smaller dose of steroids used.

In the present study, 4% patients had episcleritis. The observation of the present study correlates well with the previous study in which, the prevalence was 5.1%[4]. Also, the most common type of episcleritis observed was simple episcleritis, which coincided with the previous study as well. In the present study, the prevalence of scleritis is 2% . This is comparable with the prevalence published in the previous research.(Jayson and Jones6.3%[10])

Glaucoma was the least common complication witnessed in this study with the prevalence of 1%. Williamson11 has also documented 0.68% prevalence of glaucoma.

In this present study prevalence of keratitis was 3%.This was in line with the previous research evidence Sayjal et al[12],.

CONCLUSION

The major burden of RA is in the age group of 41-50 years. 64% of the patients had Sero-positive and 36% had sero-negative rheumatoid arthritis. The prevalence of ocular manifestations was 35%.The ocular manifestations witnessed in the present study were keratoconjunctivitis sicca(commonest-33%), scleritis(2%), episcleritis(4%), keratitis(3%), glaucoma(1%) and posterior subcapsular cataract(7%). Ocular manifestations seem to be more prevalent in patients with seropositive disease.Duration of the disease seems to influence the onset of ocular manifestations.Age of the patient has no vital role in the development of ocular manifestations. The disease burden is not related to the clinical symptoms.

Asymptomatic patients are found to have silent underlying ocular manifestations.Hence, routine screening for the above mentioned ocular manifestations is important in RA patients as a part of follow up to prevent ocular morbidity.

LIMITATIONS

Study population was small. Hence further studies are required.

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