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A STUDY OF RISK FACTORS FOR UVEITIS IN PATIENTS OF ANKYLOSING SPONDYLITIS IN CENTRAL INDIA

Ophthalmology

Dr. Mrs Padmini Warkhede* Associate professor, Dept. of Opthalmology, NSCB medical college, Jabalpur. *Corresponding Author

Dr. Jyoti Kanoje Assistant professor, Dept. of Opthalmology, NSCB medical college, Jabalpur.

ABSTRACT

Aim: Ankylosing Spondylitis is commonly associated with Uveitis but very few studies have been done on assessing the risk factors for uvetis in patients of Ankylosing Spondylitis, hence this study was undertaken.

Subjects And Methods: It was a hospital based observational study in which a total of 100 patients with Ankylosing Spondylitis (AS) who fulfilled the modified New York criteria were studied from January to December in 2020 in a tertiary care hospital in Central India. The examination and investigational findings were noted from the records of the patients.

Results: Out of a total of 100 patients with AS, 80% were male and mean age was 32.5 years. About 12% had experienced 1 or more episodes of uveitis. The incidence rate for hip-joint lesion was higher for patients with uveitis than the nonuveitis group (50% vs 25%; P<0.01). The number of peripheral arthritis was also larger for the uveitis group than nonuveitis group (2.25±0.25 vs 0.5±0.05; P<0.001).

Conclusions: This study shows that hip-joint lesions, the number of peripheral arthritis, ASO, and CIC may be associated with higher rates of uveitis in AS.

KEYWORDS

Ankylosing Spondylitis, Uveitis, Awareness, Sickle Cell Disease, Eye Complications

INTRODUCTION:

Ankylosing spondylitis (AS) is a common inflammatory disorder that usually affects the sacroiliac joints and axial skeleton, bringing about back pain and progressive stiffness of the spine. AS occurs in 0.1% to 1.4% of the general population, and it often affects young adults with the peak age of onset between 20 and 30 years.(1)

Uveitis may be the most common extra-articular manifestation, occurring in 20% to 30% of the patients with AS. It is reported that about 90% of the cases involve anterior uveitis, whereas posterior uveitis occurs rarely.(2) Despite the high occurrence of uveitis in AS, knowledge on the risks factors for developing uveitis in patients with AS is limited. It is unknown that which clinical characteristics or biochemical markers can predict the possible occurrence of uveitis in AS. Thus, the early diagnose is often missed. Some doctors even misdiagnose this disease as acute hemorrhagic conjunctivitis according to painful red eye concomitant with photophobia, increased tear production, and blurred vision in patients with AS. Hence this study was undertaken to study the risk factors for uveitis in patients of Ankylosing Spondylitis.

Methodology:

It was a hospital based observational study in which a total of 100 patients with Ankylosing Spondylitis (AS) who fulfilled the modified New York criteria (3) were studied from January to December in 2020 in Upgraded dept. of Ophthalmology, NSCB medical college, Jabalpur. The diagnosis of uveitis was done by the ophthalmologists. There are no definite diagnostic criteria for uveitis, so ocular symptoms, fundus examination, and associated laboratory testing were taken into consideration to make an actual diagnosis.(4) The patients with infectious uveitis or other systemic autoimmune rheumatic diseases (SARDs), such as psoriatic disease, inflammatory bowel disease, Reiter's syndrome, and so on were excluded.

The medical records, investigations both biochemical and radiological of the patients were studied and inference was drawn SPSS 20 was used for statistical analysis, appropriate tests were applied and a *P* value<0.05 was considered significant.

OBSERVATION AND RESULTS:

Out of the total 100 cases, 80 were males and 20 were females. Mean age was 32.5 years. In total 12% patients with 1 or more episodes of uveitis were included In the group of patients with uveitis and the rest 88 patients were included in the nonuveitis group. Of these 12 cases in the uveitis group, 50% (6/12) had hip-joint lesion involvement, whereas 25% (44/88) of the nonuveitis group suffered from hip-joint lesion. (*P*<0.01). Moreover, the number of peripheral arthritis was also larger in the uveitis group than the nonuveitis group (2.25±0.25 vs 0.5±0.05; *P*<0.001).

According to the results of biochemical examination, the serum level of ASO was significantly higher in the uveitis group than the nonuveitis group (306.7±42.5IU/mL vs 210.2±12.3 IU/mL, *P*<0.05).

Binary logistic regression results showed that ASO (OR = 13.2, 95%CI:3.5–42.3, *P*<0.01) and the number of peripheral arthritis (OR = 4.2, 95%CI:2.7–6.4, *P*<0.01) are significantly associated with uveitis in AS.

DISCUSSION:

Ours was a hospital record based observational study of 100 patients of Ankylosing spondylitis. The present study shows that uveitis in ankylosing spondylitis is highly associated with ASO, CIC, hip-joint lesion involvement, and the number of peripheral arthritis. However, no association between uveitis and HLA-B27 is observed.

Uveitis can be defined as the inflammation of the uvea, which includes the iris, ciliary body, and choroid. Clinically, it is characterized by painful red eye, intense photophobia, increased tear production, myosis, blepharospasm, and blurred vision.(5) Uveitis associated with AS is one of the autoimmune disorders, characterized by a deviant response to the immune system, that is to say, these conditions fail to distinguish self-organs, tissues, and cells of the individual from non-self-molecules, eventually leading to the impairment of target organs due to a cross-reaction between self-proteins and bacterial peptides.(6,7)

In this study, we find that the level of antistreptolysin O (ASO) was significantly higher for AS patients with uveitis than those without, suggesting the infection of hemolytic streptococcus is associated with uveitis in AS. The ASO titer can be elevated within 1 week of streptococcal infection and it will reach a maximum after 3 to 6 weeks, and then return to the normal level after 6 to 12 months without reinfection.(8) Ur et al(9) reported that molecular mimicry between streptococcal M proteins and host tissue proteins, such as retinal S antigen, may stimulate brisk proliferation and activation of lymphocytes which are capable of recognizing retinal antigens. We cannot rule out the possibility that the infection of hemolytic streptococcus is only a coincidental event in these patients.(10)

In our study, AS patients with uveitis have higher level of CIC compared to the patients without, suggesting CIC is closely associated with uveitis.

One recognized explanation of this phenomenon is that immune complexes participate in the pathogenesis of several types of uveitis.(11)

In addition, our data show the strong correlation between uvetis in AS and the number of peripheral arthritis, suggesting that patients with

severe peripheral joint involvement seem to predispose to develop uveitis. Yilmaz et al(12) reported patients with peripheral involvement had higher disease activity, functional impairment, metrologic indices, more severe pain, night pain, and morning stiffness. And this finding was also supported by other studies.(13-15)

In our study, the prevalence of hip-joint lesion is 50% in the uveitis group, compared with 25% in the nonuveitis group. Sampaio-Barros et al (16) also reported that anterior uveitis (AU) in patients with spondyloarthritis (SpA) was statistically associated with hip involvement. Hip disease occurs in about one-third of patients with AS, leading to disability or hip replacement without effect control.(17) Strong correlation between HLA-b27 and AAU has been widely reported and this term of HLA-B27-related uveitis has been used over a long period.(18-20) However, no difference of HLA-B27 between the uveitis group and the nonuveitis group is observed in our study.

The limitations of our study include small sample size and lack of objective criteria and specific tests for uveitis.

CONCLUSION:

This study shows that hip-joint lesions, the number of peripheral arthritis, ASO, and CIC may be associated with higher rates of uveitis in AS.

Table 1 Showing Clinical Information Of Patients With AS.

Characteristic	Non uveitis group (N=88)	Uveitis group (N=12)	P value
Gender: Male/ Female	71/88	9/12	>0.05
Mean Age: YEARS	32.3 ± 0.8	32.9 ± 0.7	>0.05
Disease duration: Months	52.3 ± 2.1	63.8 ± 9.2	>0.05
HLA B27: Positive/ Negative	85/3	10/2	>0.05
Hip involvement:	25% (22/88)	50% (6/12)	<0.01
Number of peripheral arthritis	0.5 ± 0.04	2.5 ± 0.25	<0.01

Table 2 Showing Biochemical Characteristics In AS Patients With Uveitis:

	Non Uveitis group	Uveitis group	P value
ESR, mm/h	41 ± 1.8	40.6± 3.8	>0.05
CRP, mg/L	18.9 ± 1.2	19.5 ± 2.1	>0.05
Platelet count, 10^9/L	256 ± 4.5	250 ± 8.8	>0.05
ALT (U/L)	25.8 ± 0.8	23.6 ± 2.8	>0.05
AST (U/L)	18.8 ± 0.6	22.6 ± 1.8	>0.05
Albumin, g/L	45.2 ± 0.3	44.6 ± 0.6	>0.05
Serum Creatinine, micro mol/L	67.2 ± 0.6	70.2 ± 1.8	>0.05
BUN, mmol/L	4.7 ± 0.4	4.5 ± 0.6	>0.05
ASO, IU/ml	201 ± 11.8	310 ± 24.8	<0.01
CIC, mg/L	18.6 ± 0.8	28.8 ± 1.8	<0.01
Urinary RBC	9.4 ± 0.6	10.4 ± 1.2	>0.05
Urinary protein, mg/d	75.8 ± 5.8	62.8 ± 7.8	>0.05

Table 3 Showing The Binary Logistic Regression Analysis For The Related Factors For Uveitis In AS.

Risk factors	b	P	OR	95% C.I
ASO	2.5	<0.01	13.2	3.5-42.3
Number of peripheral arthritis	1.4	<0.01	4.2	2.7-6.4

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