



Frequency of uveitis and its associations with HLA B27 in ankylosing spondylitis patients

Ayşe Kevser Demir¹, Hulya Deveci², Selim Demir³

¹Department of Internal Medicine, ²Physical Therapy and Rehabilitation, and ³Ophthalmology, Tokat Gaziosmanpaşa University, Tokat, Turkey

ABSTRACT

Aim: To investigate the prevalence of uveitis in ankylosing spondylitis (AS) patients and its relationship with HLA B27.

Methods: The data of 95 patients with AS who admitted to Tokat Gaziosmanpaşa University Internal Medicine and Rehabilitation Outpatient Clinics between 2010 and 2019 were analyzed retrospectively. Demographic characteristics, HLA B27 positivity and detailed eye consultation notes of the patients were recorded.

Results: Of the 95 patients, 65 (68%) were male and 30 (32%) were female. The mean age of the patients was 38.3 ± 11.6 years. The HLA B27 results of 10 patients could not be reached. 22% of the patients had at least one episode of uveitis attack. While 82% (70/85) of patients had HLA B27 positivity, this rate was 86% in (18/21) patients with uveitis.

Conclusion: Uveitis is a disease that can cause permanent loss of vision. In our study, no significant difference was found between the presence of uveitis and the presence of HLA B27 in patients with AS and this finding needs to be supported by randomized studies.

Keywords: Ankylosing spondylitis, uveitis, HLA-B27.

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Corresponding Author: Dr. Ayşe Kevser Demir,
Department of Internal Medicine, Tokat
Gaziosmanpaşa University, Tokat, Turkey

E mail: dr.kevsirdemir@yahoo.com

ORCID ID: <https://orcid.org/0000-0002-9993-5265>

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Introduction

Ankylosing spondylitis (AS) is a chronic progressive disease that causes destruction and fusion of the spinal vertebrae and sacroiliac joints. Extra-articular organs such as eyes, skin

and cardiovascular system may be affected in the disease [1]. The most common extra-articular involvement is uveitis and it occurs in 30-57% of patients [2,3]. Genetic predisposition is strong in the disease and human leukocyte antigen-B27 (HLA-B27) is very important parameter in the diagnosis. Inflammation of the uveal tissues of the eye is called as uveitis. While it can affect different localizations such as anterior, intermedier and posterior segment of the eye separately, it can be also seen together with all localizations as

panuveitis. The localization of uveitis, presence of hypopyon, and characterization of keratic precipitates in the cornea endothelium give us very important information about the etiology of the disease. Patients with AS are usually expected to have anterior uveitis. In the disease, keratic precipitates are thin, non-pigmented and distributed over the entire cornea.

The aim of this study was to evaluate the findings of eye examination in AS patients and to investigate the incidence of uveitis in the patients.

Methods

The data of 95 AS patients who admitted to Internal Medicine or Physical Therapy and Rehabilitation outpatient clinics of Tokat Gaziosmanpaşa University between 2010 and 2019 were analyzed retrospectively. Ethics committee approval was obtained from Gaziosmanpaşa University Clinical Research Ethics Committee (Decision no: 19-KAEK-088) and the study was carry out in accordance with Helsinki declaration. The patients' data of demographic characteristics, HLA-B27 results, and eye consultation notes were recorded retrospectively. The diagnosis of AS was made according to the modified New York criteria [4]. Patients who were not followed up in our hospital were excluded from the study. The best visual acuity, slit-lamp biomicroscopic and dilated fundus examination of the patients were performed in ophthalmologic clinic. The findings of uveitis including thyndal, hypopyon, synechia, vitreous cells and macular edema were recorded.

After the data were coded, SPSS version 18.0 was used for statistical analysis. Values were expressed as mean \pm standard deviation, percentage ratios were also specified. Chi-

square test was used for the analysis of the qualitative data. For statistical comparison $p > 0.05$ level was accepted as significant.

Results

There were 95 patients in the study, of them 65 (68%) were male and 30 (32%) were female. The mean age of the patients was 38.3 ± 11.6 years. Eighty five patients have HLA-B27 results, 70 patients of them (%82) were positive. 21 patients (22%) had at least one episode of uveitis attack. The rate of HLA B27 positivity was 86% in (18/21) patients with uveitis ($p = 0.104$).

When the patients with uveitis were examined in detail, all patients had signs of anterior uveitis. Dilated fundus examination revealed there was no vitreous cell. Macular edema was observed in two patients. Intraocular pressure was increased in two patients and it was controlled with topical medical treatment. Cataract was not detected in any of the case.

Discussion

AS is the most common disease among spondyloarthropathies and its association with uveitis is well known [5]. Human leukocyte antigen-27 (HLA-B27) positivity is very high in AS cases and this genetic finding is also detected in idiopathic anterior uveitis. It is not clear why there is HLA-B27 positivity in patients with uveitis, but possible theories to explain this condition have been proposed. One of the most widely accepted theories is that HLA-B27 antigens and some gram-negative bacteria have common amino acid sequences and auto-antibodies against these bacteria are targeted to the body's own tissues. The findings of recent studies demonstrating the antibodies against the *C. trachomatis*, *Klebsiella* and *Saccharomyces cerevisiae* in uveitis patients support this theory [6].

Uveitis is a disease characterized by specific clinically findings including painful redness, sensitivity to sunlight, lacrimation, decreased vision, meiosis and blepharospasm [7]. The findings of uveitis in the eye provide important information about the etiology of the disease. Scattered non-pigmented keratic precipitates on endothelial cells, ciliary hyperemia, and anterior uveitis is the most common findings of uveitis in patients with AS [8]. Granulomatous anterior uveitis is not an expected finding in these patients. Unilateral and acute onset uveitis is expected in the fourth decade of the patients [9]. All of our patients had anterior uveitis. In accordance with the literature, none of our patients had granulomatous keratic precipitates. In a recent study conducted in our country, it is showed that the incidence of eye-related complications in AS patients was 57%, and there was no statistical difference between early and late onset and ocular involvement [2].

Well known etiologic factors of uveitis are past systemic infection and antibiotic use, but idiopathic causes are the leading cause of anterior uveitis. Furthermore, AS is another important etiologic risk factors [10]. Clinical findings in these patients may affect the occurrence of uveitis. Sun et al. showed in their study that presence of hip joint lesion or peripheral joint involvement is associated with was more frequent uveitis [11]. It is also demonstrated that serum anti-streptolysin O (ASO) and circulating immune complexes were detected significantly higher in uveitis cases in the study. The finding of ASO elevation associated with a recent infection suggests that the targeting of the immune response secondary to infection may have a role in the etiology of uveitis [12]. Despite all these findings, HLA B27 positivity was found to be associated with uveitis regardless of other

findings in AS patients [13]. In addition, approximately 20% of HLA B27 negative AS cases show at least 1 uveitis attack. The clinical manifestations of AS in patients with AS was investigated in a recent study of Arévalo et al. and it was found that the presence of HLA B27 in these patients was associated with early onset of the disease and familial clustering, while the absence of HLA B27 was associated with higher peripheral arthritis, typhoid and extra articular findings [14]. Contrary to expectations, HLA B27 positivity was not associated with the presence of uveitis in their study. In parallel with this study, HLA B27 positivity was detected in 86% of AS patients with uveitis and this rate was 82% in all AS patients, and there was no significant difference in our study.

Uveitis, which can be treated effectively by timely intervention, can cause serious complications such as permanent blindness [15]. Uveitis may be accompanied by subclinical symptoms instead of classical symptoms. This may cause delay in diagnosis. The incidence of uveitis was 22% in our study. HLA B27 positivity was not found to be related to occurrence of uveitis in the patients.

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