Keratoconjunctivitis sicca in rheumatoid arthritis

G. M. MODY*+, J. C. HILL**, O. L. MEYERS*

*Rheumatic Diseases Unit, Department of Medicine, Groote Schuur and Princess Alice Orthopaedic Hospitals; **Department of Ophthalmology, Groote Schuur Hospital and University of Cape Town; + Department of Medicine, Rheumatology Unit, King Edward VIII Hospital and University of Natal, South Africa.

SUMMARY The prevalence of keratoconjunctivitis sicca (KCS) was studied in a randomly selected group of 104 patients with rheumatoid arthritis (RA). Symptoms of KCS were noted in 33 patients (31.7%) and they were studied further. After rose bengal staining, 22 of these patients were found to have KCS which was diagnosed by the presence of corneal or conjunctival desiccation. The overall prevalence of KCS was 21.2%. Although an abnormal Schirmer's test was noted in 21 of the 22 patients with KCS, only 8 patients had values of 5 mm or less while the remainder had a mild abnormality ranging from 6 to 15 mm. A reduced marginal tear film was noted in 15 patients (68.2%) with KCS and 13 patients (59%) had a reduced tear break-up time. The Schirmer's test alone is inadequate to make a definite diagnosis of KCS and it is essential to perform slit lamp examination to detect epithelial staining with rose bengal.

Key words: Keratoconjunctivitis Sicca; Sjögren's Syndrome; Rheumatoid Arthritis.

INTRODUCTION

Sjögren's syndrome comprises the clinical triad of keratoconjunctivitis sicca (KCS) or dry eyes, xerostomia (with or without salivary gland enlargement) and rheumatoid arthritis (RA) or another connective tissue disease. The term may be applied when only two of the major components of the triad are present (1). The term sicca complex or sicca syndrome is used to refer to KCS and xerostomia in the absence of associated connective tissue diseases.

Keratoconjunctivitis sicca refers to a condition in which the eyes are deficient in aqueous tear secretion secondary to hypo-function of the lacrimal gland (2). Sjögren reported that the frequency of arthritis in patients with sicca syndrome varied from 17% to 87% in different series and that 62% of his own 80 patients had arthritis (3). Manifestations of sicca complex have been noted in 11% to 35% of patients with RA, the higher incidence being noted in patients with advanced joint disease (4,5). Lenoch et al (6) found KCS in 58.4% of 250 patients with active RA who had slit lamp examination after the instillation of bengal red and the atropine provocation test.

The aim of this study was to determine the prevalence of symptomatic KCS in a randomly selected group of patients with RA...
and document the significance of the various tests used in the diagnosis.

PATIENTS AND METHODS

A randomly selected group of 104 Coloureds (Negro-Caucasoids) with classical and definite RA (7) who were attending the Rheumatic Diseases Unit in Cape Town were studied. There were 72 females and 32 males representing a ratio of 2.3:1.

The mean age of the patients was 51.1 years (range 21-80 years) and the mean duration of RA was 12.4 years (range 1.1 - 50 years). The American Rheumatism Association functional classification (8) of the patients was as follows: Class I - 26%; II - 50%; III - 14.4% and IV - 9.6%.

A history of symptoms of KCS such as burning, itching, dryness, grittiness, soreness, foreign body sensation, photophobia, diminished vision and tearing were recorded. A history of therapy for RA and associated medical illnesses was also noted. Thirty-three patients had one or more symptoms of KCS and none of these patients were on medication which could have caused dry eyes. All these 33 patients were referred to an ophthalmologist (JCH) for detailed assessment.

The symptoms of KCS were subjectively graded by the ophthalmologist as follows: 0 - nil; 1 - mild; 2 - moderate and 3 - severe, based on the frequency and severity of each symptom. The diagnosis of KCS in this study was based on the presence of one or more symptoms of KCS and epithelial staining of the cornea and/or conjunctiva after the instillation of fluorescein and rose bengal.

The marginal tear film was assessed by slit lamp examination. The tear film was recorded as being normal or reduced and the presence of any debris within it was recorded. A drop of fluorescein 1% was then instilled into each eye followed by a microdrop of 1% rose bengal applied to the superior bulbar conjunctiva with a sterile wooden applicator. The presence of staining of the cornea and/or conjunctiva was noted on slit lamp examination. The staining of the right and left cornea and conjunctiva were each scored separately as 0 - nil; 1 - mild; 2 - moderate and 3 - severe (maximum possible score being 12). The tear film break-up time (BUT) was assessed by using the Cobalt blue filter of the slit lamp to determine the interval between the last complete blink and the development of the first randomly distributed dry spot on the pre-corneal tear film. The test was performed without any topical anaesthesia and without holding the lids open as this causes mechanical stretching of the tear film and produces a shorter BUT. In this study the test was repeated 3 times and the average figure was recorded. The standard Schirmer’s test was performed without topical anaesthesia and the amount of wetting of the filter paper after 5 minutes was measured. Patients who had abnormalities in any of the ophthalmological tests in at least one of the eyes were considered as having an abnormal test.

The following tests were performed on all the patients: full blood count (Coulter S-plus automated counter), erythrocyte sedimentation rate (Westergren method), latex test for rheumatoid factor (slide agglutination technique: Ortho diagnostics), anti-nuclear factor (indirect immunofluorescent technique) and serum immunoglobulins (Behring Laser Nephelometer). The statistical tests used were the Chi-square test for categorical data and the one way analysis of variance for continuous data.

RESULTS

A history of symptoms of KCS was obtained in 33 patients (31.7%). Twenty-two of these patients (67%) were found to have evidence of ocular surface dessication damage as shown by corneal and/or conjunctival staining with rose bengal. These 22 patients were considered to have KCS and thus the overall prevalence of symptomatic KCS was