KERATOCONJUNCTIVITIS IN RHEUMATOID ARTHRITIS

O. POPESCU [1]

[1] *County Hospital "Dr. Gheorghe Marinescu'' of Târnăveni*

Keywords: *rheumatoid arthritis, dry eye syndrome; keratoconjunctivititis sicca*

Cuvinte cheie: *poliartrita reumatoidă, sindromul ochiului uscat, keratoconjunctivita sicca*

Abstract: *Keratoconjunctivitis sicca is the clinical expression of dry eye syndrome. It may be a self-contained condition or can occur as a secondary manifestation of some systemic diseases including rheumatoid arthritis, the last case being called secondary Sjögren's syndrome. This paper presents the main symptoms, clinical signs, and diagnosis and treatment principles of keratoconjunctivititis sicca.*

Rezumat: *Keratoconjunctivita sicca este expresia clinică a sindromului de ochi uscat. Poate fi o afecţiune de sine stătătoare sau poate apărea ca şi o manifestare secundară în unele boli sistemice printre care şi poliartrita reumatoidă, în ultima situaţie purtând denumirea de sindrom Sjögren secundar. Lucrarea de faţă prezintă simptomele principale, semnele clinice, principiile de diagnostic şi tratament ale keratoconjunctivitei sicca, precum şi principalele caracteristici ale poliartritei reumatoide ca şi cauză subiacentă a acesteia.*

INTRODUCTION

Rheumatoid arthritis is a systemic autoimmune disease characterized by symmetrical arteriopathy, destructive, distorting, inflammatory in combination with a series of events extraarticulatory and circulating antibodies - called rheumatoid factors and potentially causing ocular manifestations: keratoconjunctivitis sicca (secondary Sjögren's syndrome), scleritis, ulcerative keratitis and rarely the upper oblique tendon sheath syndrome, of which keratoconjunctivitis sicca being the most common eye disease in patients with rheumatoid arthritis, this condition may be invalidated in the absence of the treatment. (1)

Keratoconjunctivitis sicca is the clinical manifestation of dry eye syndrome. Dry eye is a uni-or bilateral disease that includes all events related to quality change and/or quantity of tear film production through deficiency and/or excessive evaporation of tears. The occurrence mechanism of keratoconjunctivitis sicca in rheumatoid arthritis is lacrimal hyposecretion causing a secondary Sjögren's syndrome, this syndrome occurring in other autoimmune diseases besides rheumatoid arthritis: disseminated lupus erythematosus, scleroderma, dermatomyositis and polymyositis, mixed connective tissue disease, primary biliary cirrhosis. (1, 2, 3, 6)

Subjective signs

Most frequently patients complain of dry sensation, of foreign body and burning which is typically emphasized throughout the day. Common are also adherent mucus secretion, temporary blurred vision, redness and crusting appearance of the eyelids. Symptoms are exacerbated by exposure to conditions associated with increased tear film evaporation (although in the case of rheumatoid arthritis the main mechanism is lacrimal hyposecretion, evaporation accentuates the disease): air conditioning, wind and central heating or prolonged reading, situation in which blinking frequency is reduced. (1, 2, 3, 6)

In addition to these ocular symptoms may occur or may exacerbate symptoms of underlying disease, rheumatoid polyatrhritis, in this case. Most commonly, keratoconjunctivitis sicca is a secondary symptom, not a symptom of onset, but affects the life quality of patients already low because of basic disease.

Objective signs

Depending on the severity of the tear film being affected by the disease has several clinical aspects. Dotted corneal epithelial erosions that are stained with fluorescein and affect lower and interpalpebral cornea: as the easiest and best respond to drug therapy. Another clinical issue is the filamentous keratitis: filaments are composed of mucous, epithelial cells and lipids and resemble a comma with one end attached to the corneal surface and moving on every blinking. Their mobilization is painful because it stimulates the free endings of corneal epithelium. Bengal rose is a good coloring agent. A more serious form of the disease and usually associated with corneal filaments are mucous plaques of different shapes and sizes, with the same composition as filaments. In serious cases appear neoformations of blood vessels in the corneal limbs. Further clinical signs of basic disease appear. Complications: in very severe cases appear superficial peripheral surface corneal neovascularisations, epithelial rupture, melting and perforation, and bacterial keratitis. (1, 2, 3, 6)

Methods of diagnosis for dry eye syndrom

The aim of investigations is to confirm and quantify the diagnosis of dry eye and implicitly keratitis sicca - clinical expression of dry eye. The tests measure the following parameters: determinations of tear film break up time, quantitative test for determining the tear film (Schirmer test I and II) and dye test (determined ocular surface damage). (4)

Determination of tear film break up time (break up time - BUT)

Precorneal tear film breaks spontaneously after a time

[1]Corresponding Author: Ovidiu Popescu, Municipal Hospital "Dr. Gheorghe Marinescu'', Târnăveni, 27/16, Nicolae Bălcescu street, Târgu-Mureş, Romania; e-mail: popescu.ovidiu2000@yahoo.com; tel +40-0720001650
Article received on 07.04.2011 şi accepted for publication on 23.08.2011
ACTA MEDICA TRANSILVANICA December 2011; 2(4)296-297

without blinking. Film rupture causes corneal surface of dry spots or areas (dry spot). By BUT is measured the time in seconds since the last blinking to the appearance of the first discontinuity areas in precorneal film after instillation of a drop of fluorescein in the bottom of the lower conjunctival sac.

Breaking the normal tear film must be over 15 sec. A short break time (10 seconds or less) indicates an impaired function of internal tear layer. (4)

Quantitative tests to determine the tear film

In this category of tests belong Schirmer test I and II. **Schirmer Test I** was described by Otto Schirmer in 1903, as the most widely used in ophthalmologic practice for quantitative assessment of tears. This test is considered a diagnostic criterion of sicca syndrome, allowing measurement of total tear secretion, basal and reflex. A thin strip of filter is folded and placed without anesthesia in the lower conjunctival sac bottom in 1/3 of external eyelid. After 5 minutes, the length of the wet portion is measured. A normal secretion causes wetting the filter paper about 15 mm in length. Hypersecretion is considered if the paper is quickly flooded with tears, wetting the paper less than 10 mm is considered pathological and lacrimal hyposecretion when less than 5 mm from test length is damp. Using a topical anesthetic reflex secretion is eliminated and only basal secretion is measured. A new Schirmer test is applied and the difference between test I and test II is the reflex secretion of the tear film. Less than 5 mm of wetting on basal secretion is conclusive for lacrimal hyposecretion.

Schirmer Test II is performed after showing a low value base secretion. The same test placed in the conjunctival sac will perform a mechanical or chemical irritation of the nasal mucosa. Wetting increase of the test indicates the integrity of track related reflexes, while a slight increase shows a lack of secretory reflexes in the lacrimal pathway. (4)

Dye tests

Dye tests are used to assess corneal and conjunctival epithelium. Most commonly are used fluorescein 1% and Bengal rose 1%. Fluorescein staining shows disruptions of corneal epithelium. Staining with fluorescein in 1/3 low indicates a severe dysfunction of the tear film. The presence of abnormal epithelial cells in cornea and conjunctiva, and devitalized cells is highlighted with Bengal rose. Bengal rose application is able to detect the finest deepithelisation on the surface of the cornea and conjunctiva. This dye stains the filaments and mucous plaques well, and on the level of the bulbar conjunctiva appear two triangles with the basis in the limb. (4)

Treatament

Treatment is primarily a local one of symptom improvement and a general one, addressed mainly to the underlying disease. Local treatment consists of topical administration of cyclosporin A, which increases tear secretion and improves ocular surface, autologous serum, with nourishing input and defense role (containing Ig and serum proteins), artificial tears and ocular lubricants. The use of soft, hydrophilic lenses relieves symptoms in some cases. By the application of soluble implants at the level of lacrimal points of some collagen or silicone appliance, substitutes defective lacrimation. Temporary or permanent obstruction of the lacrimal canaliculi. General treatment consists of: administration of Mucolytic agents, acetylcysteine, for two weeks, for filamentous forms or mucous plaque; cholinergic agents, acting through hypersecretion of exocrine glands; in Sjögren's syndrome corticosteroids are given, synthesis, antimalarial and methotrexate. Treating the underlying disease and slowing down its progress have a favorable effect on ocular symptoms as well. (2)

BIBLIOGRAPHY

1. Kanski JJ, Clinical oftalmology, Butterworth-Heinemann International Editions 2007,: 205-213.
2. Dumitrache M, Tratat de oftalmologie, volumul I: 257-258.
3. Cernea P, Tratat de oftalmologie. Bucureşti, Editura Medicală, 2002; 218-247.
4. Labbe A, Brignole- Baudouin F, Baudouin C. Ocular surface investigations in dry eye. J Fr Ophtalmol 2007; 30(1): 76-97.
5. Georgescu L, Actualităţi terapeutice în reumatologie, Editura University Press, 2001
6. Cellini M, Versura P, Leonetti P *et al.* Ocular surface and intraocular inflammation are related in SS-I and rheumatoid arthritis patients. Rheumatol Int 2007; 27(9): 853-857..