Tear Function and Ocular Surface Alterations With Lactoferrin Treatment in Severe Dry Eyes

Y. Yamamoto¹, M. Dogru¹, Y. Matsumoto², M. Saeki¹, E. Goto¹, M. Ishioka² and K. Tsubota¹

¹ Ophthalmology, Keio University, Tokyo, Japan ² Ophthalmology, Tokyo Dental College, Chiba, Japan

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Abstract

Purpose: To assess the changes in tear functions, ocular surface findings and dry eye symptomatology in severe dry eye patients with oral lactoferrin supplementation and compare the results with those of healthy control subjects.

Methods: Fourteen eyes of 7 Sjogren’s syndrome patients (4 males, 3 females; mean age: 63.5 years) who had no improvement in tear functions and ocular surface vital staining scores after at least 8 weeks of conventional treatment with preservative free artificial tears, autologous serum eye drops and punctum plug applications as well as 10 eyes of 5 age and sex matched healthy control subjects were enrolled in this study. All subjects received lactoferrin supplement (270mg/day) for 2 months and underwent tear film lipid layer interferometry examinations with assessment of lipid layer thickness (DR–1, Kowa, Tokyo), Schirmer test–1, tear
film break up time and corneal sensitivity measurements as well as ocular surface vital staining with fluorescein and Rose Bengal dyes before and after supplement therapy. Dry eye symptomatology was assessed with visual analog score scales.

**Results:** There were no considerable changes in Schirmer test values before and 2 months after lactoferrin supplementation in all subjects. Pre treatment tear stability, interferometry dry eye grades and ocular surface staining scores fared worse in dry eye patients compared to controls. Tear stability, interferometry dry eye grades and ocular surface staining scores improved in all dry eyes with thickening of the tear film lipid layer(p<0.05). Lactoferrin supplementation was not associated with considerable thickening of the lipid layer in the control subjects. Dry eye symptomatology improved in all patients with significance. The need for artificial tear drops in the patients decreased from an average of 12 drops/day to a mean value of 5.5 drops/day within 2 months(p<0.05).

**Conclusions:** Lactoferrin supplementation in severe dry eye patients is associated with improvement of dry eye symptoms, tear stability and vital staining scores owing to alterations in the tear film lipid layer.

**Keywords:** cornea: clinical science • cornea: epithelium • cornea: tears/tear film/dry eye