

The Effectiveness of Autologous Serum Eye Drops versus Artificial Tears for Dry Eye Conditions

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Received: August 14, 2018; **Published:** January 22, 2019

Abstract

Autologous serum eye drops are effective in the treatment of severe dry eye diseases. They improve the tear stability because they contain specific concentrations of growth factors such as (VEGF, FGF, IGF and TGF) that are important for corneal epithelial healing. There are few studies that reveal the advantages of autologous serum eye drops, the first one was in the seventies and it included the safety of eye drops on small number of volunteers. Until now, the use of autologous serum eye drops is very limited because there is some conflict related to the preparation and usage of them. Autologous serum eye drops are indicated for several conditions such as Sjögren's syndrome, dryness of eye, bullous keratopathy and post refractive surgeries.

Keywords: *Autologous Serum Eye Drops; Artificial Tears*

The preparation of autologous serum eye drops involves multi step process that involves collecting the blood of patient then centrifuges it for about 10 minutes to separate blood components. After that, dilution of blood serum into a bottle (10 cc) composed of 8 cc normal saline and 2 cc serum. Patients should store all the bottles in the refrigerator. Serum concentrations vary, from 20% (which is widely accepted) to 100%. The reason why 20% dilution of autologous serum is more preferred than 50% or 100% because it is similar to normal tear film surface. In addition, there are a lot of complications related to 50% and 100% concentrations such as discomfort, eczema of eyelid, keratitis, conjunctivitis, epithelial defect, scleral melting and the most dangerous one is deposition of immune complexes especially with 100 % concentration [1-11].

Objectives

I conducted this study to evaluate the efficacy of autologous serum eye drops versus artificial tears for treatment of various dry eye conditions for a duration of 3 months.

Selection Criteria and Methods

The study included two categories of adult patients who were medically free but had symptoms related to dry eye syndrome such as pain sensation, redness, itching and foreign body sensation. Half of each category was consist of males and the other half was consist of females. The first category is 100 adult patients who received autologous serum eye drops alone and the second category is 100 adult patients who received artificial tears alone for ocular surface disease in both eyes for a period of 3 months. The patients in the first category instilled one drop of the 20% of autologous serum eye drops 5 times daily for 3 months and the patients in the second category instilled one drop of artificial tears (preservative free Hydroxypropyl methylcellulose) 5 times daily for the same duration of treatment. In addition, a questionnaire was utilized to ask patients how they feel after using the drops. The survey depended on simple ranking system. I had requested the patients to read the questionnaire carefully and to assess the drops on simple and clear scale system from (0 to 10). I used Pearson Correlation Coefficients (which is a measure of linear correlation between 2 variables) to compare improvements and efficacy for autologous serum eye drops versus artificial tears.

Results

Results showed that 81 patients (81 %) who received autologous serum eye drops with a mean follow-up of 3 months, reported improvements of symptoms and they were satisfied with the drops and they ranked it above (5 out of 10 on the above scale). While, the results revealed that 46 patients (46%) who received artificial tears, reported improvements of symptoms and they ranked it above

(5 out of 10 on the above scale). Surprisingly, both categories had not have any side effects from using autologous serum eye drops or preservative - free artificial tears.

Conclusions

Overall, I conclude that autologous serum eye drops (20% concentration) are more effective than artificial tears for treatment of different dry eye conditions and for relieving symptoms.

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Volume 10 Issue 2 February 2019

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