

Autologous Serum Eye Drops In the Treatment of Neurotrophic Keratitis

AUTHOR

Date of Submission: 20-11-2021

Date of Acceptance: 04-12-2021

I. Purpose:

To evaluate management of Iatrogenic Neurotrophic keratitis with autologous serum treatment in 14 patients affected by Neurotrophic Keratitis.

II. Methods:

we enrolled 14 patients (9 female, 5 males) with diagnosis of Neurotrophic keratitis, (mean age: $72,1 \pm 11$) treated with autologous serum for 1 year. Patients were included in 3 groups according to recent NK classifications (stage I, II and III). Confocal microscopy evaluation (IVCM), anterior segment (AS.OCT) Minimum corneal thickness MCT , and Best corrected visual acuity were performed at 15 days, 1 month 3 months 6 months and 12 months after treatment.

III. Results:

36 patients showed a full recovery of corneal Neurotrophic keratitis starting from 1 month after the beginning of treatment, BCVA increased from a baseline 0,397 avg to 0,22 logMAR at 12th month , MCT increased from 356 μm at baseline to 465 μm at the end of follow up



IV. Discussion

Autologous serum eye drops are actually used in the treatment of many ocular diseases, and many studies have demonstrated the effectiveness of AS eye drops in treating different conditions such as superior limbic keratoconjunctivitis, recurrent corneal erosion, neurotrophic keratopathy, and Sjogren's syndrome. In addition, there have been few reports that show the efficacy of some blood products such as platelet-rich plasma (PRP) in treating chemical burns. Hence, we started using AS eye drops for different ocular surface diseases that were not responding to conventional therapies. Our study investigated a heterogeneous group of pathologies with different pathogenesises to understand better the role and potentialities of AS.

V. Conclusions:

according to literature and to our study results, autologous serum is a valid medical approach for the treatment of Neurotrophic keratitis. Autologous serum harbors neurotrophic factors. Autologous serum treatment may provide neural healers to the compromised ocular surface and seems promising for the restoration of the ocular surface epithelial integrity in patients with NK.

References :

- [1]. B. A. Noble, R. S. K. Loh, S. MacLennan et al., "Comparison of autologous serum eye drops with conventional therapy in a randomised controlled crossover trial for ocular surface disease," *British Journal of Ophthalmology*, vol. 88, no. 5, pp. 647–652, 2004. View at: [Publisher Site](#) | [Google Scholar](#)
- [2]. G. G. Quinto, M. Campos, and A. Behrens, "Autologous serum for ocular surface diseases," *Arquivos Brasileiros de Oftalmologia*, vol. 71, no. 6, pp. 47–54, 2009. View at: [Google Scholar](#)
- [3]. M. E. Stern, R. W. Beuerman, R. I. Fox, J. Gao, A. K. Mircheff, and S. C. Pflugfelder, "The pathology of dry eye: the interaction between the ocular surface and lacrimal glands," *Cornea*, vol. 17, no. 6, pp. 584–589, 1998. View at: [Publisher Site](#) | [Google Scholar](#)
- [4]. M. E. Stern, J. Gao, K. F. Siemasko, R. W. Beuerman, and S. C. Pflugfelder, "The role of the lacrimal functional unit in the pathophysiology of dry eye," *Experimental Eye Research*, vol. 78, no. 3, pp. 409–416, 2004. View at: [Publisher Site](#) | [Google Scholar](#)
- [5]. M. Rolando, "Sjögren's syndrome as seen by an ophthalmologist," *Scandinavian Journal of Rheumatology, Supplement*, vol. 30, no. 115, pp. 27–33, 2001. View at: [Google Scholar](#)
- [6]. R. A. Ralph, M. G. Doane, and C. H. Dohlman, "Clinical experience with a mobile ocular perfusion pump," *Archives of Ophthalmology*, vol. 93, no. 10, pp. 1039–1043, 1975. View at: [Google Scholar](#)
- [7]. R. I. Fox, R. Chan, J. B. Michelson, J. B. Belmont, and P. E. Michelson, "Beneficial effect of artificial tears made with autologous serum in patients with keratoconjunctivitis sicca," *Arthritis and Rheumatism*, vol. 27, no. 4, pp. 459–461, 1984. View at: [Google Scholar](#)
- [8]. K. Tsubota, E. Goto, H. Fujita et al., "Treatment of dry eye by autologous serum application in Sjogren's syndrome," *British Journal of Ophthalmology*, vol. 83, no. 4, pp. 390–395, 1999. View at: [Google Scholar](#)
- [9]. B. H. Jeng, "Use of autologous serum in the treatment of ocular surface disorders," *Archives of Ophthalmology*, vol. 129, no. 12, pp. 1610–1612, 2011. View at: [Publisher Site](#) | [Google Scholar](#)
- [10]. K. Tsubota, E. Goto, S. Shimmura, and J. Shimazaki, "Treatment of persistent corneal epithelial defect by autologous serum application," *Ophthalmology*, vol. 106, no. 10, pp. 1984–1989, 1999. View at: [Google Scholar](#)
- [11]. A. C. Poon, G. Geerling, J. K. G. Dart, G. E. Fraenkel, and J. T. Daniels, "Autologous serum eyedrops for dry eyes and epithelial defects: clinical and in vitro toxicity studies," *British Journal of Ophthalmology*, vol. 85, no. 10, pp. 1188–1197, 2001.

XXXXXXX, et. al. "Autologous Serum Eye Drops In the Treatment of Neurotrophic Keratitis." *IOSR Journal of Dental and Medical Sciences (IOSR-JDMS)*, 20(12), 2021, pp. 11-12.