

COMPARATIVE STUDY BETWEEN PLATELET-RICH-PLASMA AND AUTOLOGOUS SERUM EYE DROPS IN SEVERE DRY EYE DISEASE

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Introduction

Dry eye disease (DED) is a usual occurrence in everyday practice, with a significant effect on an individual's quality of life. Commercially available artificial tears eye drops help to relieve the biomechanical trauma caused by DED, but they lack biological properties like nutrients that enhance ocular surface regeneration and immunological defense. As a result, it greatly increased the demand for human blood-derived products as DED eye drops. Serum is the commonly blood product applied as eye drops, with the proposed advantage being the existence of growth factors in tears, which were present in serum, as well as different biochemical components that act similarly to real tears than the usual therapies. They also lack the preservatives found in artificial tears. Other blood-based preparations, such as PRP eye drops, have recently become available as potential therapies for various ocular surface disorders, including DED.

Aim of the work

The aim of this work was to compare between platelet-rich plasma (PRP) and autologous serum 20 % (AS) eye drops for the treatment of severe dry eye disease.

Patients and Methods

The current study was done on a total number of 40 patients classified into two groups:

1. Group A "PRP eye drops group".
2. Group B "Autologous serum eye drops group".

With an equal number of 20 patients in each group. All the cases met the inclusion and exclusion criteria and dry eye parameters were assessed (symptom's score "OSDI", ocular surface fluorescein staining score, Schirmer test) alongside with comprehensive ophthalmological examination contain corrected distance visual acuity "CDVA", full history.

Follow up was done at 1st month and 3rd month after treatment with evaluation of the following parameters: (Symptom's score "OSDI", ocular surface fluorescein staining score, corrected distance visual acuity "CDVA", Schirmer test and "OSA" parameters).

Results

Table 1: Comparison between the two studied groups according to OSDI

OSDI	Group A (n = 20)	Group B (n = 20)	U	p
Baseline				
Min. – Max.	33.0 – 44.0	33.0 – 46.0	192.00	0.841
Mean ± SD.	36.15 ± 3.42	36.60 ± 4.42		
Median (IQR)	34.50(34.0 – 37.50)	35.0 (33.0 – 40.0)		
1st month				
Min. – Max.	22.0 – 37.0	30.0 – 40.0	135.0	0.081
Mean ± SD.	29.70 ± 4.94	33.35 ± 3.41		
Median (IQR)	31.50 (26.0 – 32.0)	32.50 (31.0 – 35.0)		
3rd month				
Min. – Max.	15.0 – 28.0	19.0 – 32.0	150.0	0.183
Mean ± SD.	22.30 ± 4.49	25.45 ± 4.26		
Median (IQR)	23.0(17.50 – 26.50)	26.50(21.50 – 27.0)		

IQR: Inter quartile range SD: Standard deviation U: Mann Whitney test
p: p value for comparing between the two studied groups
*: Statistically significant at $p \leq 0.05$

Table 2: Comparison between the two studied groups according to N.I.B.U.T

N.I.B.U.T (sec.)	Group A (n = 40)	Group B (n = 40)	t	p
Baseline				
Min. – Max.	4.90 – 17.40	6.70 – 15.20	0.120	0.905
Mean ± SD.	9.36 ± 2.70	9.30 ± 1.66		
Median (IQR)	9.25 (7.55 – 10.90)	9.20 (8.65 – 9.70)		
1st month				
Min. – Max.	6.70 – 13.20	8.60 – 13.60	1.086	0.281
Mean ± SD.	11.11 ± 1.31	10.80 ± 1.28		
Median (IQR)	11.10(10.60–11.45)	10.70(10.10–11.60)		
3rd month				
Min. – Max.	10.80 – 15.20	9.50 – 14.80	1.396	0.167
Mean ± SD.	13.29 ± 1.31	12.87 ± 1.34		
Median (IQR)	13.30(12.60–14.40)	13.25(12.45–13.65)		

IQR: Inter quartile range SD: Standard devia t: Student t-test
p: p value for comparing between the two studied groups

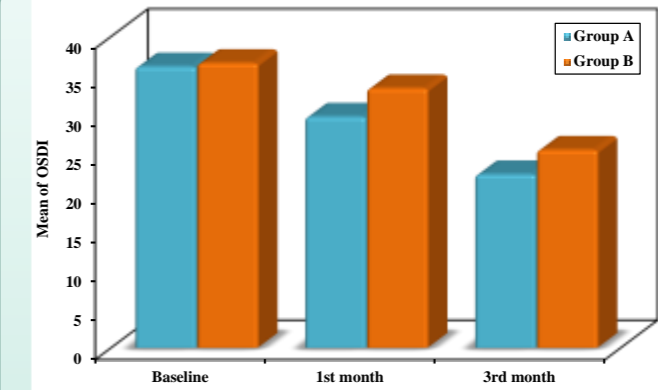


Figure 1: Comparison between the two studied groups according to OSDI

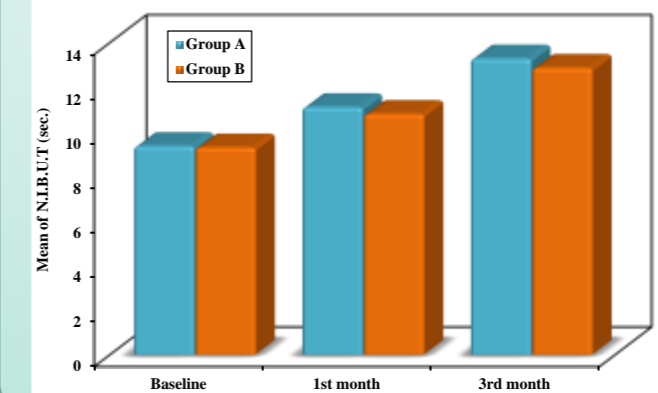


Figure 2: Comparison between the two studied groups according to N.I.B.U.T

Conclusion

- 1-PRP eye drops and autologous serum eye drops are safe and effective in treatment of severe dry eye disease.
- 2-They reduce signs and symptoms of dry eye disease, with the fact that their effect continued to occur significantly within the treatment periods.
- 3-There is no significant difference between PRP and Autologous serum eye drops in their effect on dry eye in this study.
- 4- PRP eye drops are well tolerated by patients more than AS eye drops. No ocular infections occurred during the clinical study.