The Efficacy and Tolerability of Finger-Prick Autologous Blood Eye Drops for the Treatment of Ocular Surface Disease: A Literature Review

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Background

Ocular surface disease (OSD) arises from disorders in the lacrimal and meibomian glands, as well as the corneal and conjunctival epithelium causing symptoms such as dryness, pain and irritation and is typically caused by chronic topical glaucoma treatment and autoimmune disease, resulting in tear film instability and ocular surface inflammation. Blood-derived products were first used on the ocular surface in 1975. Serum has similar properties to that of endogenous tears, which can have symptomatic benefits to those with OSD. However, there are concerns with allogeneic serum eye drops due to transmission of blood-borne viruses and hypersensitivity reactions. Autologous serum also has their own issues in terms of collection and production. As a result, this literature review investigated the potential benefits of using finger-prick autologous blood (FAB) eye drops as an alternative treatment option.

Objectives

The aim of this study was to investigate the efficacy and safety of FAB eye drops on patients with OSD.

Methods

A search strategy was conducted using PubMed, Cochrane Library and Scopus. Studies that were included were published as full text, in the last 10 years and clinical trials on human subjects.

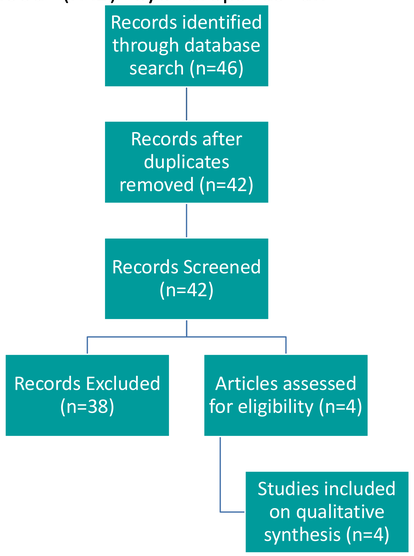


Figure 1. PRISMA Flow Diagram. *The flow chart outlines the search strategy in accordance with PRISMA.*

Results

- The search strategy yielded 46 publications across the three databases, 4 of which were deemed eligible.
- Three of the papers were prospective, non-comparative, interventional case series and one paper was a single-masked, multi center randomized control trial.
- There were 75 participants across the four trials.
- No complications, ocular or finger-related, reported in any of the four studies.

Table 1. Summary of Results. *A table showing the metrics measured across the four studies including in the literature review and if these metrics were significantly improved with FAB eye drops*

Metric	Studies that measured Metric	Significance in Improvement ($p<0.05$)
Ocular Comfort Index/ Ocular Surface Disease Index	3 [1,2,4]	2 [1,2]
Oxford Corneal Grading Staining	3 [2.3.4]	2 [2,4]
Schirmer's	3 [2,3,4]	1 [2]
Tear Film Break-Up time	3 [2,3,4]	2 [2.4]
Visual Acuity	2 [3,4]	1 [3]
Epithelium Defect	1 [1]	0

Conclusion

- There is evidence that FAB eye drops can provide an alternative treatment option to those with OSD.
- Improvement in symptomatic relief, reduction in size of epithelial defects, improved VA, TBUT and Schirmer's.
- Patients tolerated the finger-pricking well as there were no complications seen across the four studies.

Future Recommendations

Larger, long-term RCTs comparing FAB with conventional autologous serum and artificial tears across diverse populations are required to further evaluate the current knowledge in this field

References

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