Botulinum Toxin Injection for Hemifacial Spasm and Benign Essential Blepharospasm: A Systematic Review and Meta-Analysis comparing Pretarsal and Preseptal Injection Techniques

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Purpose Compare outcomes of **pretarsal** *versus* **preseptal** botulinum toxin injection techniques for patients with benign essential blepharospasm (BEB) and hemifacial spasm (HFS).

Methods Electronic search was conducted to identify all studies comparing outcomes between the two techniques. Primary outcome: change in Jankovic Rating Scale (JRS). Secondary outcomes: adverse events, duration to maximum response and latency to first response.

Results Analysis of 384 patients from six studies [1-6], with 2657 injections for HFS and 1033 for BEB, showed significant improvement in JRS scores **favouring the pretarsal group** for both conditions (HFS: MD=0.47, P=0.001; BEB: MD=0.92, P=0.001). In HFS, pretarsal injections had longer duration of response (P=0.0005) and fewer ptosis occurrences (P=0.0009), with similar outcomes for post-procedure tearing, irritation and lagophthalmos.

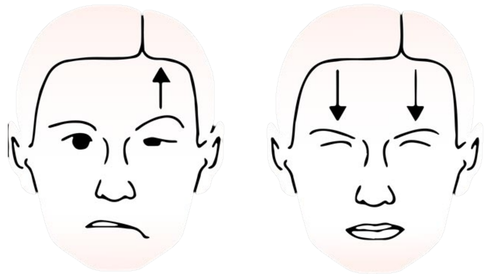


Figure 1. Demonstration of HFS (left) and BEB (right)[7]

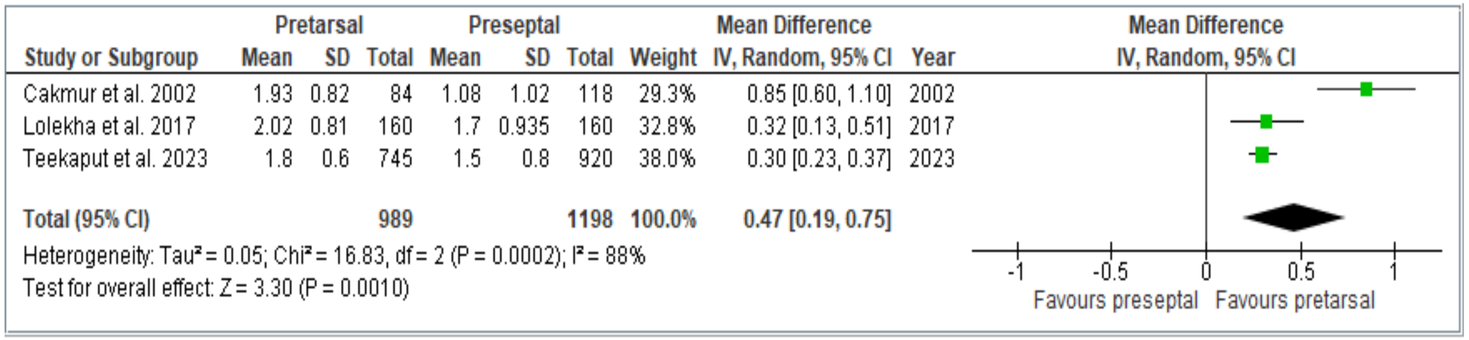


Figure 2. Forest plot for mean difference analysis between pretarsal vs preseptal in HFS patients- Change in JRS score.

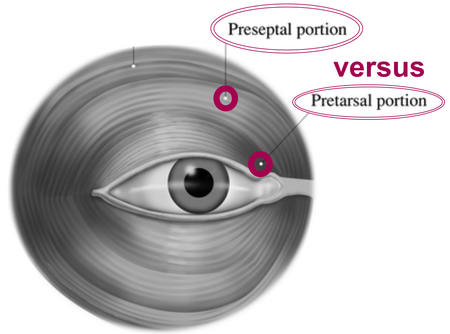


Figure 3. Representation of anatomical area for preseptal versus pretarsal technique[8]

Conclusion Pretarsal botulinum toxin injection is preferable for BEB and HFS, reducing spasms, ptosis occurrences, and increasing maximal response duration. Further clinical trials are necessary to validate these findings.

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