Therapeutic potential of Myo-inositol in oligo-astheno-teratozoospermia

Introduction

About 40%–50% of infertility cases are due to male factors, which may involve one or a combination of the following:

Asthenospermia (poor sperm motility) + Oligospermia (low sperm concentration) + Teratospermia (abnormal morphology) → Collectively defined as oligo-astheno-teratospermia

Objective

To assess the impact of Myo-inositol on sperm parameters in patients with oligo-astheno-teratospermia.

Study details

A meta-analysis was conducted in accordance with PRISMA guidelines.

Total studies analysed:
Six randomised clinical trials conducted between 2012 and 2022.

Treatment and duration:
Various doses of Myo-inositol administered for durations ranging from 30 minutes to 6 months.

Results

There were a significant improvements in several sperm parameters following Myo-inositol therapy:

Total sperm motility
Significant increase (SMD 0.90; 95% CI: 0.34–1.46; $p = 0.001$) (Figure 1)

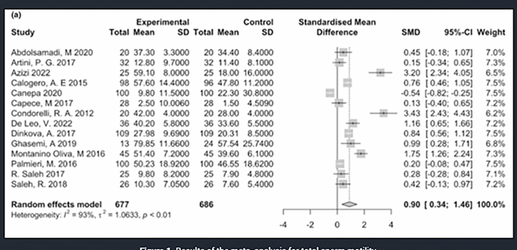

Figure 1. Results of the meta-analysis for total sperm motility.
SD: Standard difference; SMD: Standardised mean difference; CI: Confidence intervals.

Progressive sperm motility
Significant increase (SMD 1.48; 95% CI: 0.37–2.59; $p = 0.008$) (Figure 2)

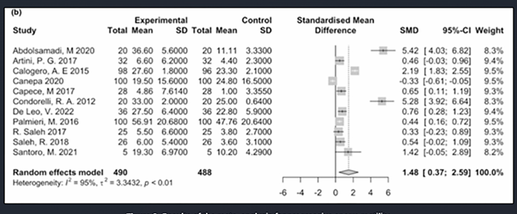

Figure 2. Results of the meta-analysis for progressive sperm motility.
SD: Standard difference; SMD: Standardised mean difference; CI: Confidence intervals.

Testosterone levels
Significant improvement (SMD 0.54; 95% CI: 0.34–0.73; $p < 0.0001$) (Figure 3)

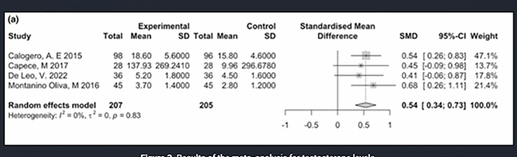

Figure 3. Results of the meta-analysis for testosterone levels.
SD: Standard difference; SMD: Standardised mean difference; CI: Confidence intervals.

DNA fragmentation
Significant decrease (SMD −1.37; 95% CI: −2.43 to −0.32; $p = 0.01$) (Figure 4)

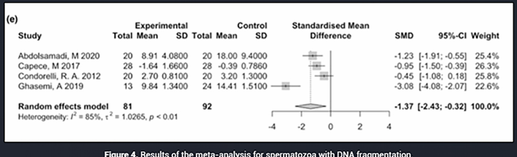

Figure 4. Results of the meta-analysis for spermatozoa with DNA fragmentation.
SD: Standard difference; SMD: Standardised mean difference; CI: Confidence intervals.

Conclusion

Myo-inositol therapy improves total and progressive sperm motility and testosterone levels, with a reduction in sperm DNA fragmentation, indicating its potential as a safe and effective option for the management of infertility in males.

Abbreviations

CI: Confidence intervals; IVF: *In vitro* fertilisation; PRISMA: Preferred Reporting Items for Systematic Reviews and Meta-Analyses; SMD: Standardised mean difference

Reference

Ghaemi M, Seighali N, Shafiee A, *et al.* The effect of Myo-inositol on improving sperm quality and IVF outcomes: a systematic review and meta-analysis. *Food Sci Nutr.* 2024;12(11):8515–24.
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