

# The use of hyaluronic acid for sperm immobilisation and selection before intracytoplasmic sperm injection

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## Background

- Several methods (ultramorphology, surface electric charge, apoptotic vs nonapoptotic, chromatin structure assay) have been recently proposed for optimising the sperm selection in order to reduce the risk of chromosomal anomalies associated with poor ICSI outcome.
- Hyaluronic acid (HA) is found naturally in the women's reproductive tract and it forms a component of the cumulus–oocyte complex. It has been proposed as a physiological alternative to polyvinylpyrrolidone (PVP) for use as a selection medium to reduce sperm motility as a solution for the reported toxicity and unknown long term effects of PVP.
- Sperm's capacity to bind HA is a biochemical marker of maturity and function, suggesting the selection of sperm by HA binding to be an alternative to microscopic assessment of motility and morphology.

## Objective

- To appraise critically the published randomised controlled trials (RCTs) reporting on the use of HA for sperm immobilisation and selection before ICSI.

## Methods

- PICO Method to formulate a specific and answerable clinical question followed by a comprehensive literature search based on a predefined protocol.
- Medline/PubMed/PMC, Cochrane Central Register of Controlled Trials (CENTRAL), EBSCOhost, ClinicalTrials.gov and Google Scholar from inception until June 2015.
- RCTs evaluating sperm immobilisation and selection using HA before ICSI with no filter for date, country or hospital of origin, publication language, sample size or blinding.
- RevMan 5.2.11, provided by the Cochrane Collaboration, was used for statistical analysis.
- Risk Ratio (RR) with a 95% confidence interval (CI) was calculated using the Mantel-Haenszel method for binary data variables.

## Conclusion

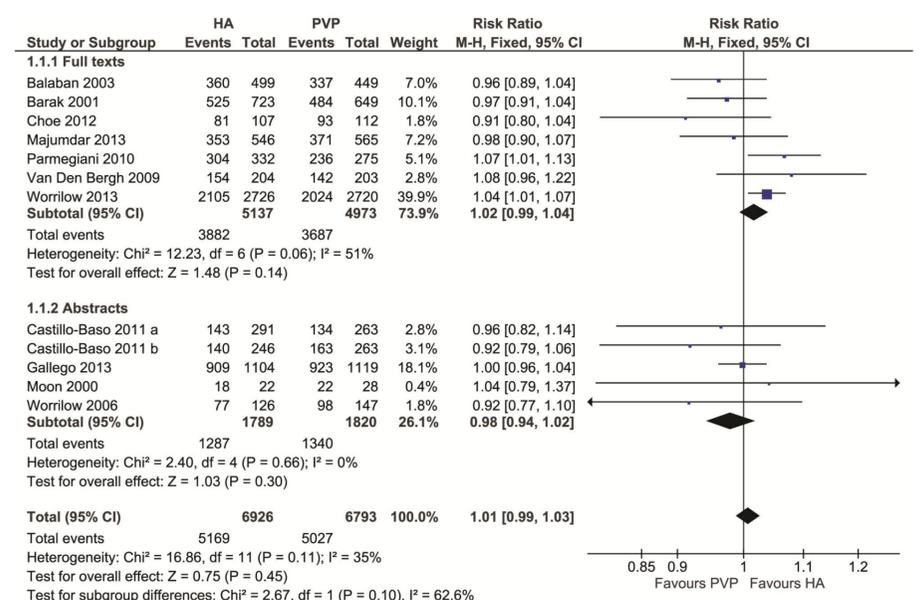
- This systematic review and meta-analysis provides evidence of similar efficiency between using HA or PVP for sperm immobilisation and selection before ICSI.

## Results

- 11 RCTs evaluating 13719 oocyte intracytoplasmic injections with sperm immobilised and selected using HA or PVP were included in this systematic review and meta-analysis.

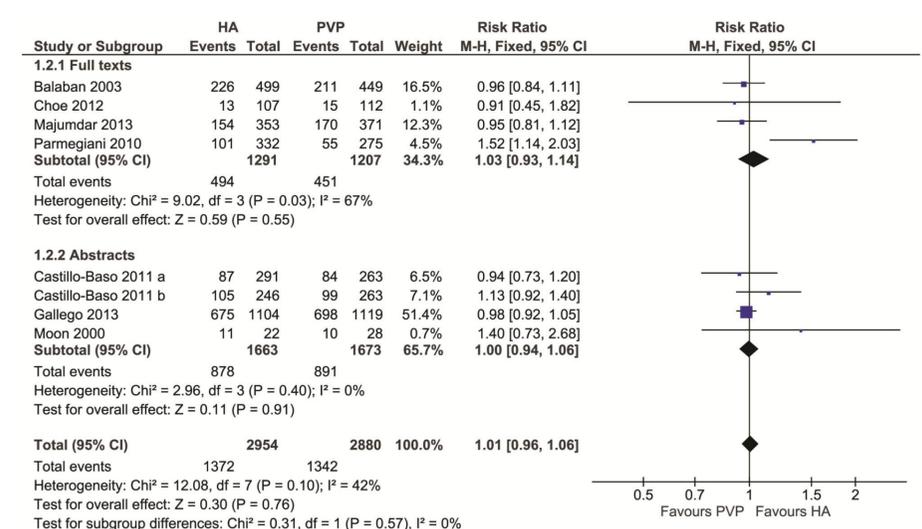
### • Fertilisation rate per oocyte injected

The fertilisation rate was similar (RR, 1.01; 95% CI, 0.99 to 1.03) in the HA group compared to the PVP group.



### • Good embryos rate per oocyte injected

No statistically significant difference was found between the HA and PVP groups (RR, 1.01; 95% CI, 0.96 to 1.06).



- No difference in terms of live birth, clinical pregnancy or implantation rates.