

## Varicocele surgery, new evidence

### Background

A varicocele is a meshwork of distended blood vessels in the scrotum, usually left sided, due to dilatation of the spermatic vein. Varicocele is the most frequent physical abnormality found in subfertile men. The concept that and how varicoceles would cause subfertility and that varicocelectomy would restore fertility has not yet been satisfactorily explained. It has been questioned whether a causal relation exists at all between the distension of the plexus pampiniformis and impairment of fertility.

This is a summary of a meta-analysis published by the Cochrane Library (Kroese *et al.*, 2012) investigating surgery or embolization for varicocele in subfertile men.

### Methods

The authors searched electronic databases including the Cochrane Library, MEDLINE and EMBASE in January 2012. They also handsearched specialist journals in the field, checked cross-references and contacted authors of published papers directly in case of missing data.

The objective was to evaluate the effect of varicocele treatment on live birth rate and pregnancy rate in subfertile couples in whom the man had a varicocele.

Only randomized controlled trials dealing with the treatment of varicocele in subfertile couples (with otherwise unexplained subfertility) were eligible. Live birth rate was the primary outcome and studies mentioning the pregnancy rate (secondary outcome) were also included. The results are presented as relative risks (RRs) with 95% confidence intervals (95% CIs).

### Results

#### Trials and quality

Ten randomized controlled trials (11 publications) were included, with a total of 894 men. The studies are statistically and clinically heterogeneous and consist of small numbers of patients. One study is an extension of a previously published study. One study is a published abstract that has not been published as a full paper yet (missing data were provided by the author).

No studies reported live birth as an outcome. Eight studies reported the pregnancy rate as a primary or secondary outcome. One study reported paternity as a secondary outcome and another study reported the conception rate as a primary outcome.

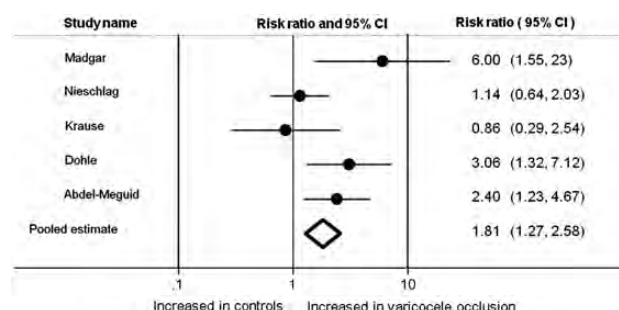
One study compared surgical ligation/embolization versus no treatment. Two studies compared embolization versus no treatment or counseling only. One study compared surgical repair versus clomiphene citrate. Six studies compared surgical repair versus no (or delayed) treatment.

Five studies included men with subclinical varicoceles or men with normospermia, these were excluded from the subgroup analysis. An analysis of all studies and a subgroup analysis were performed which will be presented here because of its clinical significance. The subgroup

analysis consisted of 5 studies including 505 men with a clinically manifest varicocele and abnormal semen analysis (excluding azoospermia).

### Pregnancy rate

Comparing treatment with no treatment in the total group, the RR for the pregnancy rate was 1.34 (95% CI 1.03–1.74, 894 men, 181 pregnancies,  $I^2$  67%). This suggests a significant advantage of treatment. The number needed to treat (NNT) to benefit is 17. In the subgroup analysis including only men with a clinically manifest varicocele and abnormal semen analysis, the RR comparing treatment with no treatment for the pregnancy rate was 1.81 (95% CI 1.27–2.58, 505 men, 121 pregnancies,  $I^2$  58%). The NNT was 7 (see Figure).



### Conclusion

In this updated Cochrane review the authors conclude that surgical or radiological treatment of varicocele in subfertile men with a clinically manifest varicocele and poor semen quality may be of benefit. For every 7 men treated one additional pregnancy will be obtained. The caveat is, however, that the evidence is not conclusive because the methodological quality of the individual studies is very low. More research is needed with live birth or pregnancy rate as a primary outcome.

### Reference

Kroese ACJ, de Lange NM, Collins JA, Evers JLH. Surgery or embolization for varicocele in subfertile men. *Cochrane Database Syst Rev* 2012;**10**:CD000479. doi: 10.1002/14651858.CD000479.pub5.

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