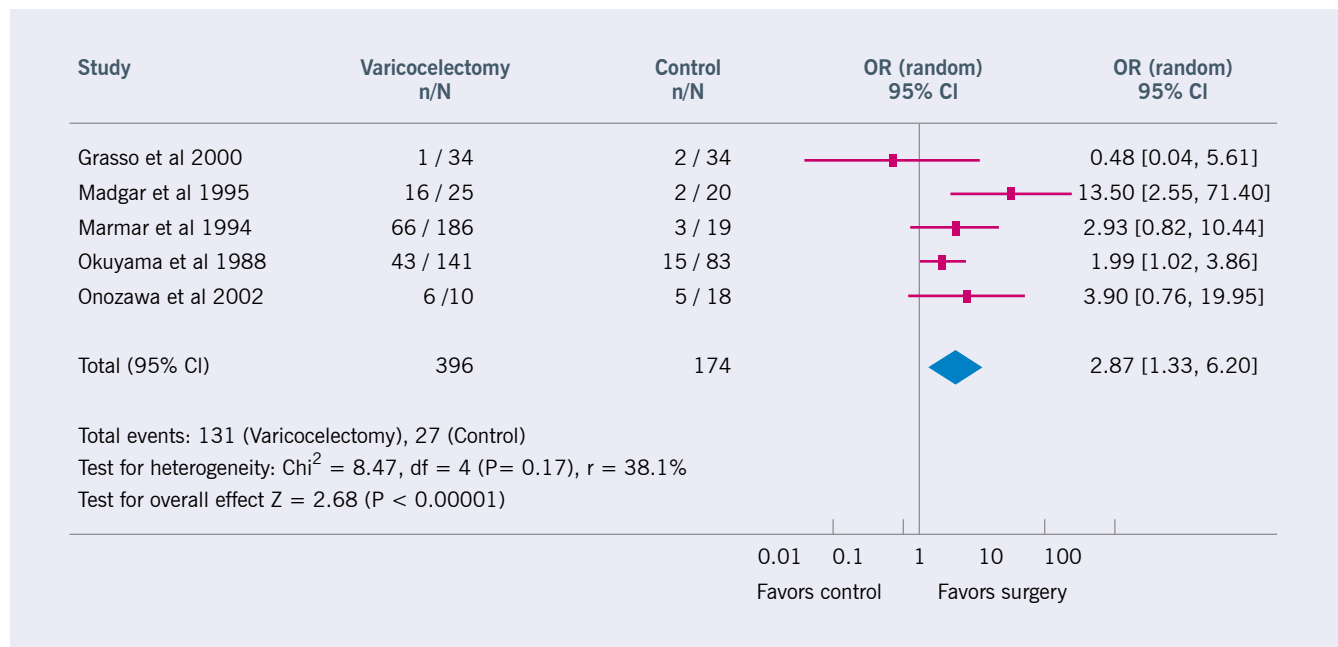


## Does Varicocelectomy Improve Fertility? Meta-Analysis Finds Positive Correlation



The role of varicocelectomy in correcting male subfertility has long been debated. The incidence of varicocele among infertile men is higher than average, yet some studies show improvement in fertility after varicocele repair, while others do not.

Seeking a definitive answer, Cleveland Clinic reproductive medicine specialists undertook a meta-analysis of the existing literature, reported in the issue of *Fertility and Sterility* now in press.

Their conclusion: surgical varicocelectomy in infertile men with palpable lesions and at least one abnormal semen parameter improves the odds of spontaneous pregnancy.

Ashok Agarwal, Ph.D., Director of the Andrology Laboratory and Reproductive Research Center, says, "The finding is not surprising. Varicoceles cause an elevation in testicular temperature that is deleterious to spermatogenesis."

Adds Edmund Sabanegh, M.D., Head of the Section of Male Infertility, "There is now sufficient evidence to say that varicocelectomy can improve semen quality and increase pregnancy rates. If no other etiology for subfertility is identified in men with clinical varicoceles and abnormal semen parameters, we recommend varicocelectomy."

### Ensuring study integrity

To eliminate bias, the researchers considered only studies involving palpable unilateral or bilateral varicoceles; evidence of at least one low semen parameter in three separate samples; and surgical varicocelectomy (high ligation, inguinal or microsurgery), with data on its relationship to spontaneous or natural pregnancy rates.

Taking study design, relevance of outcome measures, quality and potential bias into account, they narrowed the field from 101 articles to five. The five large surgical studies all had data on spontaneous pregnancy rates. The mean age of male cohorts was 31.2 years, with a range of 20 to 46 years. (Data on mean female age and duration of infertility were unavailable.)

While varicoceles were palpable in all studies, only two reported specific sizes. Grade III (large) varicoceles were recorded in 9.5 percent and 34.3 percent of patients, respectively; grade II (moderate) in 54.4 percent and 21.8 percent, respectively; and grade I (small) in 36.2 percent and 43.7 percent, respectively. Study controls either had no treatment at all or, as reported in one study, received clomiphene citrate.

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## Does Varicocelectomy Improve Fertility? continued

### Pregnancy odds increase

Meta-analysis revealed that varicocelectomy increased the odds of spontaneous pregnancy by 2.87 compared with medical therapy or no treatment.

Varicocelectomy was associated with improved rates of spontaneous pregnancy in four studies, suggesting that it improved sperm density. “Sperm density did not improve after varicocelectomy in the single study in which pregnancy rates did not increase,” notes Dr. Agarwal.

“We also evaluated pregnancy outcome on the basis of number needed to treat (NNT). Significantly, within the five studies, 396 patients underwent operation and had 131 pregnancies (33.0 percent), while 174 controls had 27 pregnancies (15.5 percent). The NNT was 5.7 (95% CI, 4.1 – 9.5).”

In a meta-analysis accepted for publication in *Urology*, Drs. Agarwal and Sabanegh report that microsurgical varicocelectomy produced a significant, 9.71 mil/mL increase in sperm concentration; a 9.92 percent increase in sperm motility; and a 3.16 percent improvement in WHO sperm morphology.

### The genetic wild card

Genetic markers – such as Y-chromosome microdeletions – and abnormal karyotypes may explain why some men with varicoceles are fertile, while others remain infertile even after varicocelectomy, says Dr. Sabanegh.

“The growing use of genetic and molecular markers to subclassify men with varicoceles may help us identify which infertile men stand the best chance of benefiting from varicocelectomy,” he says.

Evaluation of any male with suboptimal sperm quality by a urologist familiar with fertility issues is recommended. “Evaluation should be done early on, to maximize the couple’s reproductive options and chances for success,” says Dr. Sabanegh.

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