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THE FOUNDATION OF JOHN PAUL II
INSTITUTE FOR
MARITAL INFERTILITY TREATMENT

# Male fertility support in the treatment of marital infertility with Natural Procreative Technology

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## Introduction:

Male factor abnormalities are found in 50% of couples with infertility [Nangia 2011]. In this group very common finding in men are varicoceles - abnormally dilated veins in the pampiniform plexus. Presence of VC is often associated with abnormalities in semen analyses. In general population the estimated prevalence of this condition is 4,4-22,6%, but in the group of men treated for infertility the incidence of VC is higher and ranges 21-41% and 75-81% in patients with primary and secondary infertility respectively [Will 2011, Jungwirth 2012]. VC have negative impact on male fertility potential therefore surgical correction of this defect which leads to improvement in semen analysis increases couple`s chances of obtaining a pregnancy.

## Objective:

To evaluate the efficacy of laparoscopic (LPS) varicocelectomy in the treatment of varicocele (VC) in men with impaired sperm parameters.

## Material and methods:

A retrospective analysis of 29 infertile couples with male factor (VC) and accompanying female factors, who underwent treatment in year 2009-2012 in Maternity and Life Clinic in Lublin (Poland). The relevant data were abstracted from medical records and entered into a computerized database. Obtained data were analyzed statistically. The retrospective study has an approval of Local Ethics Committee.

## Results:

In all presented couples one of the initial diagnosis was abnormal result of semen analysis. To perform analysis semen was collected to the non-latex condom, without spermicides ( Seminal fluid Collection Device SCD) during sexual intercourse and transported in security bag to the laboratory within 45 minutes in body temperature [Zavos 1985]. SCD was perforated with a needle in order not to make this Unitive Procreative Marital Act infertile.. Assessment of results was done according to WHO reference values. Men were consulted by urologist who performed physical examination, scrotal ultrasound and diagnosed VC. All patients underwent laparoscopic varicocelectomy in the Department of Urology, Municipal District Hospital in Lubartów (Poland). Procedure was performed under general anesthesia by experienced urologist. There were no major complications. Semen analysis was performed 3 and 6 months after the procedure. Additionally patients were encouraged to modify life style (stop smoking, limit alcohol and drugs, avoid sauna and hot baths, wear appropriate underwear). They received antioxidant treatment (folic acid, zinc, selenium, vitamin E). Patients with low testosterone or elevated prolactin level received tamoxifen (20mg daily) [Kotoulas 1995] or bromocriptine respectively. When low sperm motility was presented l-carnitine was supplemented. Men with allergy or dyspepsia in anamnesis had food intolerance IgG (www.camnutri.com – FoodPrint 40 test) test and exclusion diet. Additionally semen cultures were done. Antibacterial or antifungal treatment was performed according to the results.

Statistically significant increase in mean sperm concentration (Tab. 1, Fig. 1) and mean total sperm count (Tab. 1, Fig. 2) was observed after 3 and six months following surgery.

Table. 1 Changes in mean sperm concentration and mean total sperm count

| | Mean sperm concentration (M/ml) | SD | p-value p<0,05 | Mean total sperm count (M) | SD | p-value p<0,05 |
|---|---|---|---|---|---|---|
| Preoperatively | 1,18 | ±2,4 | | 5,23 | ±8,53 | |
| 3 month after surgery | 3,92 | ±4,68 | p<0,05 | 12,55 | ±16,5 | p<0,05 |
| 6 months after surgery | 6,89 | ±6,75 | p<0,05 | 23,25 | ±18,01 | p<0,05 |

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## Discussion:

VC can be diagnosed with physical examination or scrotal ultrasound. Some patients may report pain or discomfort associated with this condition [Jungwirth 2012]. The pathophysiology of VC is multifactorial and complex. In ultrasound imaging they are presented as dilated veins with diameter >3mm and coexisting reversal of flow after Valsalva maneuver [Will 2011]. In most cases VC are on the left side due to the anatomic position of spermatic and renal veins to each other. In infertile men presence of VC is related with reduced spermatogenesis, impaired Leydig cell function, lower testosterone level, decrease of sperm density, motility and morphology [Nork 2014, Will 2011]. VC promote increase of hydrostatic pressure and impaired blood flow in the pampiniform plexus which causes increase in scrotal temperature which should be in physiologic conditions 2°C below body temperature [Schoor 2001]. Other potential factors involved in the development of VC are: autoimmunity, sex hormone changes and reflux of adrenal hormones [Will 2011]. In some men VC is associated with progressive testicular damage from adolescence, which causes reduction of fertility in the future. Studies reported increased sperm DNA damage that can be caused by varicocele-mediated oxidative stress [Jungwirth 2012]. Many approaches were developed for the therapy of VC including: laparoscopic or microsurgical varicocelectomy, open surgical techniques, percutaneous embolization or sclerotherapy. Comparative studies show that microsurgery is superior to other techniques due to high success rate and low number of complications [Will 2011]. In 2009 Cochrane Database System Review stated that the evidences that varicocelectomy improves a chance for pregnancy in infertile couples are not sufficient, but this meta-analysis was criticized for wrong selection of evaluated studies [Evers 2009]. In our study we observed the increase in mean sperm concentration and mean sperm count in analyses performed 3 and 6 months after laparoscopic varicelectomy. Authors of other studies reported also that VC repair causes significant increase in total motile sperm count and spontaneous pregnancy [Will 2011]. Varicocelectomy can reverse observed sperm DNA damage [Jungwirth 2012]. Treatment of VC may improve fertility outcomes in infertile couples with male factor [Kroese 2014].

Females were treated according to NaProTechnology protocols [Hilgers 2004].

## Conclusions:

LPS varicocelectomy can be considered a good method for the treatment of male with VC with increasing chances of pregnancy. Accompanying treatment of female factor is essential for the effective therapy of infertility

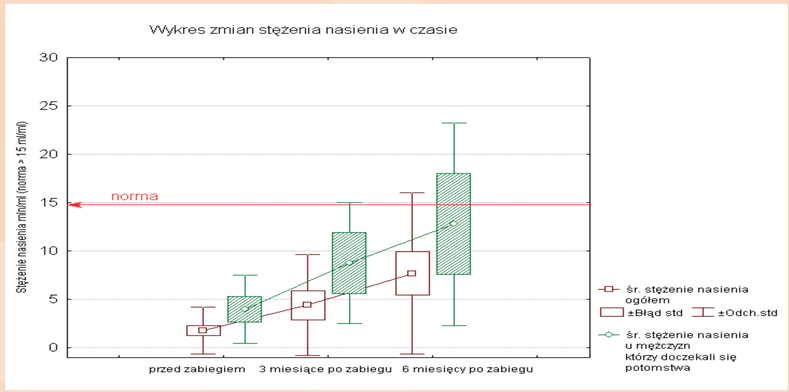


Figure 1. Changes in mean sperm concentration (analysis preoperatively, 3 and 6 months after the procedure)

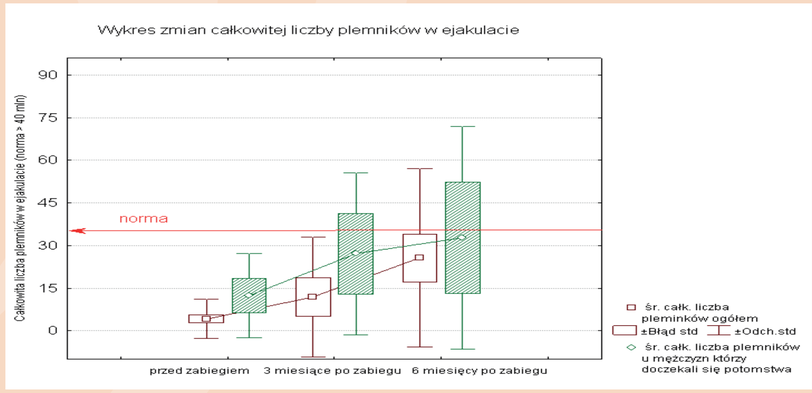


Figure 2. Changes in mean total sperm count (analysis preoperatively, 3 and 6 months after the procedure)

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