P-705 4:30 PM Tuesday, October 20, 2020

VARICOCELECTOMY IS ASSOCIATED WITH IMPROVEMENT IN SPERM CAPACITATION AND THE PROBABILITY OF GETTING PREGNANT IN INFERTILE MEN. Christopher Gaffney, MD,[1] Philip Xie, B.S.,[2] Nahid Punjani, MD MPH,[3] Jonathan Fainberg, MD,[3] Aaron Brant, MD,[3] Alessandra Parrella, M.Sc.,[2] Gianpiero D. Palermo, M.D., Ph.D.,[2] James A. Kashanian, MD[4] [1]Weill Cornell Medicine, New York, NY; [2]The Ronald O. Perelman and Claudia Cohen Center for Reproductive Medicine, Weill Cornell Medicine, New York, NY; [3]Weill Cornell Medicine, New York Presbyterian Hospital, New York, NY; [4]Weill Cornell Medicine - New York Presbyterian Hospital, New York, NY.

OBJECTIVE: Male infertility is associated with poor sperm capacitation function as measured by Cap-Score™. We sought to determine if Cap-Score™ would improve following microsurgical varicocelectomy.

DESIGN: We performed a prospective cohort study comparing the preoperative and post-operative Cap-Scores™ (Androvia LifeSciences) and routine semen analyses parameters in men who presented with infertility, were found to have a unilateral or bilateral varicocele on physical exam, and were treated with unilateral or bilateral microsurgical varicocelectomy.

MATERIALS AND METHODS: Varicoceles were diagnosed and graded by a single urologist in the standing position. Semen analyses were performed on fresh ejaculates according to WHO criteria. We recorded semen volume, concentration, motility, percent normal forms, Cap-Score™ and the probability of getting pregnant (PGP) and compared pre-operative values with post-operative values using Wilcoxon Rank-Sum tests in R Studio®. PGP is a validated calculated metric based on semen volume, concentration, and Cap-Score™ .

RESULTS: We identified 11 men (mean age 37.6 +/- 6.7) who presented with male factor infertility, were diagnosed with unilateral or bilateral varicoceles, and were treated with microsurgical varicocelectomy. Each of these men had a semen analysis and Cap-Score™ preoperatively and 3 months post-operatively. There was no statistical difference between semen volume, concentration, motility, or morphology before and after varicocelectomy, though there was a trend toward improvement in concentration (**Table**). Of the 11 men, 9 (81.8%) demonstrated improved Cap-Score™ and PGP after treatment. On average, Cap-Score™ increased 5.0% (p=0.03) and PGP increased 8.9% (p=0.03) after varicocelectomy **(Table).** The change in Cap-Score™ was not associated with the grade of varicocele or whether the patient had a unilateral or bilateral repair. Thus far, 2 men reported a clinical pregnancy, 1 from an IUI cycle and 1 spontaneous conception.

CONCLUSIONS: It is known that varicocelectomy improves semen parameters and conception. This study confirms that microsurgical varicocelectomy may augment male fertility by improving sperm capacitation ability. In doing so, varicocelectomy improves the probability of getting pregnant.

Table. Semen parameters and Cap-Score™ before and after microsurgical varicocelectomy

	Before Varicocelectomy		After Varicocelectomy		
	Mean	STD	Mean	STD	p-value
Volume (ml)	2.6	1.1	2.1	0.8	0.24
Concentration (million/ml)	24.4	17.4	35.6	27.1	0.19
Motility (%)	41.0	8.0	42.4	5.4	0.22
Morphology (%)	2.7	1.1	2.5	1.1	0.13
CAP Score (%)	26.7	4.5	31.7	5.2	**0.03**
PGP (%)	31.5	7.4	40.4	9.5	**0.03**

P-706 4:30 PM Tuesday, October 20, 2020

RELATION BETWEEN SPERM MORPHOLOGY AND PREGNANCY RATE AFTER AN INTRAUTERINE INSEMINATION. Mario Alfonso Patron Vazquez, Sr., Ob-Gyn,[1] Julio C. Rosales, M.D.,[2] Genaro Garcia Villafaña, Sr., MD,[1] Karla Mariel Alcalde, MD,[2] Karla Alejandra Cantú, M. Sc.,[2] Marianna Perez Vargas, MD[1] [1]IECH Fertility Center, Monterrey, NL, Mexico; [2]IECH, Monterrey, NL, Mexico.

OBJECTIVE: To determine if sperm morphology after capacitation affects intrauterine insemination outcomes.

DESIGN: Retrospective cohort study between December 2018 and April 2019.

MATERIALS AND METHODS: A total of 166 couples with unexplained infertility and 284 cycles of ovarian stimulation for intrauterine insemination were done at the IECH Fertility Center in Monterrey, Nuevo León, México and were divided between two groups: Group 1 (study group) were patients with teratospermia (sperm morphology <4%) and Group 2 (control group) were patients with normal sperm morphology (>4%). The main variable results were pregnancy rate per cycle. Sperm count, progressive motility, total count and morphology were analyzed in spermogram.

RESULTS: Demographic outcomes were homogeneous among two groups. Male patients between 31-35 years had major proportion of severe teratospermia. No statistical significance pregnancy rate was observed with the two groups (17 vs 23 p=0.2 OR=1.6). Cohort point to predict birth rate in this studied population was 5.5% with a specificity of 81% and sensibility of 30%. Patients with teratospermia had primary infertility with statistical significance comparable with control group (79.79% vs 68.42&, p= 0.0493, OR 1.82).

CONCLUSIONS: Teratospermia can't be count as a parameter to predict pregnancy in this population. Couples with unexplained infertility and sperm morphology greater that 5.5% increases chances of getting pregnant.

P-707 4:30 PM Tuesday, October 20, 2020

REPRODUCTIVE PARAMETERS IN MEN WITH SOLITARY TESTIS. Andrew Hany Rezk, BA,[1] Michael B. Tradewell, MD, MS,[1] Jesse Ory, MD,[2] Emad Ibrahim, MD, HCLD(ABB),[1] Ranjith Ramasamy, M.D[1] [1]University of Miami Miller School of Medicine, Miami, FL; [2]University of Miami, Miami, FL.

OBJECTIVE: Men with solitary testis frequently report difficulties with fertility yet there is limited data available to help guide counseling. Expanding our knowledge about sperm parameters and gonadotropin levels in men with solitary testis is essential. The objective of this study was to evaluate the reproductive parameters in men with solitary testis presenting for male infertility evaluation.

DESIGN: An observational study of semen parameters and hormonal evaluation of infertile men with solitary testis.

MATERIALS AND METHODS: Data was gathered from a male infertility clinic database between January 2016 and March 2020. All men had semen analysis data, serum FSH, LH, and total testosterone (T) collected within +/-90 days. Etiology and timing of testis loss was collected. We excluded data from men with recent testosterone or steroid use.

To further assess spermatogenesis, sperm concentration and sperm motility data from men with solitary testis (case) were paired with matching semen parameters in men with bilateral descended testis (control). Medians and interquartile ranges [25-75] are reported. Statistical analysis including univariate and multivariate analysis using continuous variables (median, IQR, and range) were performed in *R*. P-values <0.05 were deemed statistically significant.

RESULTS: We identified 34 men with solitary testis. The median age was 36.27 [32.31-40.51] years. 19 men had solitary testis due to cancer, 8 due to cryptorchidism, and 7 due to trauma/torsion. Eight men did not have a recorded time of testis loss. In the remaining 26 men, the median time between orchiectomy and clinic visit was 7.75 [3.27-19.58] years and eight had a prepubertal orchiectomy.

A total of 11 / 34 men were azoospermic. In the remaining men with sperm, the median sperm concentration was 8.00 [1.50-17.00] mill/ml. Among all men, the median LH level was 6.6 [3.47-10.81] IU/L and the median T was 400 [303.00 - 499.00] ng/dl. We performed a case-control analysis with 1:1 sperm concentration and motility match between men with solitary testis and bilateral testis was completed. FSH in men with solitary testis was 14.6 [7.70-26.07] IU/L, which was significantly more elevated than men with bilateral testis (FSH: 6.8 [3.57-12.28]), p=0.012. There was no difference in T and LH.

CONCLUSIONS: Infertile men with solitary testis may have underlying sub-fertility compounded by loss of a testicle. One third of men with solitary testis were azoospermic. The elevated FSH levels in men with solitary testis compared to men with bilateral testis and matched semen parameters indicates the compensatory mechanism in these men to continue spermatogenesis and may indicate a higher degree of testicular strain.