



Figure 3: Bar and Pie chart demonstrating distribution of survey responses to statements regarding (A) primary reason for remaining unvaccinated (n = 932) and (B) whether COVID-19 vaccines could negatively impact their fertility (those who chose side effects or unknown long-term effects as a reason for remaining unvaccinated (n=528) data shown as percentage of survey respondents.

Source of Funding: This research was funded in part by the Miami Andrology Research Scholars (MARS) program

PD20-09 VARICOCELE IS UNDERDIAGNOSED IN MEN EVALUATED FOR INFERTILITY: EXAMINATION OF MULTI-CENTER LARGE SCALE ELECTRONIC HEALTH RECORD DATA

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INTRODUCTION AND OBJECTIVE: Varicocele is the most common reversible cause of male infertility, affecting up to 20% of healthy men and 40% in men with primary infertility. Since reproductive endocrinologists are the gatekeepers for male infertility care in North America, we hypothesized that varicocele will be underdiagnosed when compared to its reported prevalence. The objective of this study was to investigate the prevalence of varicocele in men being evaluated for infertility, and to determine rates of subsequent varicocele repair using varicocelectomy or venous embolization using a large, multicenter database containing over 75 million patient records from 48 healthcare organizations.

METHODS: TriNetX, a large, multicenter electronic health record (EHR) was queried to establish a cohort of all men (18+) with a diagnosis of male infertility (ICD-10-CM N46). The cohort was used to identify those with a diagnosis of varicocele (ICD-10-CM I86.1). Rates of subsequent varicocele repair were determined by identifying men who received varicocelectomy (CPT 1008633, 55530, 55535, 55550) or venous embolization (CPT 37241) on the day of varicocele diagnosis or later.

RESULTS: Out of 92,262 men with a diagnosis of male infertility in the network, only 10,520 (11.4%) had a diagnosis of varicocele. Mean age of men with varicocele was 42 [32 – 52]. Interestingly, varicocelectomy or venous embolization was performed in just 2,360 (22.4%) and 67 (0.64%) men with varicocele, respectively. Strengths of the study include large sample size, heterogeneity of the study population, and establishment of chronology of diagnoses and treatments. These results are limited by lack of data on severity of disease, as well as inconsistent data recording, missing data, and lack of context in which data were collected including age of spouse and associated female factor infertility evaluation.

CONCLUSIONS: In a large, cross-sectional electronic health record study, varicocele was underdiagnosed in men being evaluated for infertility when compared with prior epidemiological studies. A potential explanation for our findings is that evaluation of male fertility is commonly performed by reproductive endocrinologists, which may result in fewer male physical examinations and thus underdiagnosis of varicocele and fewer varicocele repairs. This study is the first to our knowledge to thoroughly investigate the epidemiology of varicocele and treatment for varicocele, including follow-up procedures after diagnosis.

Source of Funding: This work was supported by National Institutes of Health Grant R01 DK130991 and the Clinician Scientist Development Grant from the American Cancer Society to Ranjith Ramasamy

PD20-10 MICROSURGICAL VARICOCELECTOMY IS ASSOCIATED WITH IMPROVEMENT IN CAP-SCORE™ AND PROBABILITY OF GENERATING A PREGNANCY IN INFERTILE MEN

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INTRODUCTION AND OBJECTIVE: Poor sperm capacitation is a potential cause of male infertility. Sperm capacitation can be measured via an assay which evaluates monosialotetrahexosylganglioside (GM1) localization within the plasma membrane of human spermatozoa (Cap-Score™). We sought to determine if sperm capacitation would improve following varicocelectomy in infertile men.

METHODS: We performed a prospective cohort study comparing pre- and post-operative semen analysis and Cap-Scores™ (Androvia LifeSciences) in men presenting to a single academic center with infertility from 1/2019 to 6/2021. We included men with unilateral or bilateral varicoceles determined by physical exam in the standing position who subsequently underwent microsurgical subinguinal varicocelectomy. Semen analyses were performed according to WHO (5th edition) criteria. We recorded semen volume, sperm concentration, motility, morphology, total motile sperm count (TMSC), Cap-Score™ and corresponding probability of generating a pregnancy (PGP) within 3 or fewer cycles of intrauterine insemination. We then compared pre- and post-operative values using Wilcoxon signed rank tests.

RESULTS: Of the 126 men who underwent varicocelectomy from 1/2019 to 6/2021, we identified 32 (mean age 35.0±5.3 years) who had a semen analysis and Cap-Score™ both before surgery and 3 months post-op (mean 111±27 days) to allow a full cycle of spermatogenesis. Of these, 19/32 (59.4%) had bilateral varicoceles, 10/32 (31.3%) had a grade 2 varicocele and 16/32 (50%) had a grade 3 varicocele. There were no differences in semen volume, sperm motility, or sperm morphology after surgery; however, there was improvement in sperm concentration (p=0.002) and TMSC (p=0.02) (Table 1). Cap-Score™ and PGP improved in 25/32 men (78.1%). On average, Cap-Score™ increased 4.8% (p=0.003) and PGP increased 7.6% (p=0.004). On further analysis, the change in Cap-Score™ was not associated with a unilateral or bilateral repair, nor with varicocele grade (grade 1-2 vs grade 3).

CONCLUSIONS: Men treated with varicocelectomy have improvements in sperm concentration, TMSC, Cap-Score™, and PGP as measured by Cap-Score™. These results may have important implications for patient counseling and our understanding of how varicoceles alter sperm function.

Table 1: Semen Parameters and Cap-Score™ Pre- and Post-Varicocelectomy (n=32)

	Before Varicocelectomy		After Varicocelectomy		Absolute Change in Mean	p-value
	Mean	STD	Mean	STD		
Volume (ml)	2.9	1.5	2.8	1.4	0.1	0.7083
Concentration (million/ml)	22.3	20.8	31.3	23.9	9	0.002297
Motility (%)	33.9	15.3	36.2	14.9	2.3	0.1383
TMSC (million)	23.2	25.7	32.6	33	9.4	0.01637
Morphology	2.2	1.2	2.6	1.9	0.4	0.6726
Cap-Score™ (%)	24.9	7.5	29.7	6.4	4.8	0.002687
PGP (%)	29.5	12.1	37.1	11.2	7.6	0.00364

Source of Funding: Authors JM and CK are supported in part by the Frederick J. and Theresa Dow Wallace Fund of the New York Community Trust