significantly in the majority of men prescribed CC. However, PSA levels should be monitored due to the small number of men who do develop abnormalities.

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IDENTIFYING DIFFERENTIAL MRNA & MIRNA EXPRESSION PATTERNS IN MICROSURGICALLY ISOLATED INDIVIDUAL SEMINIFEROUS TUBULES REVEALS UNIQUE "NICHE" FOR SPERMATOGENESIS IN MEN WITH SEVERE FORMS OF INFERTILITY. S. Mittal,[a] A. Mielnik,[b] A. Bolyakov,[b] P. N. Schlegel,[b] D. Paduch.[c] [a]Urology, New York Presbyterian / Weill Cornell Medical College, New York, NY; [b]Urology, Weill Cornell Medical College, New York, NY; [c]Dept of Urology, Weill Cornell Medical College, New York, NY.

OBJECTIVE: Non-obstructive azoospermia (NOA) is a cause of male infertility secondary to genetically driven defects in spermatogenesis. Testicular sperm extraction (TESE) is successful in identifying small number of sperm in 50% of men with NOA. During TESE, predominantly collapsed seminiferous tubules (ST) are identified with rare areas of dilated STs that are more likely to harbor viable sperm. Hence we hypothesize that miRNA regulated control of mRNA expression along STs leads to optimal environments for spermatogenesis within the human testis.

DESIGN: Seminiferous tubules from individuals were isolated and differential mRNA and miRNA expression profiles were determined to show heterogeneity within the same patient.

MATERIALS AND METHODS: STs were obtained from 7 patients, including 3 with NOA, and 2 patients with Sertoli-cell only (SCO). In the three NOA patients, single STs were cut based on the differences in diameter along the same ST into: full/dilated or empty/collapsed tubules. Quantitative PCR was performed on all tubules for GDNF and GFRα1 and values expressed per vimentin and clusterin. ACTB was used as a housekeeping gene. Expression of GFRα1 was corrected for number of Sertoli cells (vimentin/clusterin). MiRNA expression profiles were determined for each segment of STs and normalized to let-7a. GenEx software was used to identify differentially expressed miRNAs using adjusted $p<0.0007$ and minimum of 2-fold difference.

RESULTS: Quantitative PCR showed a statistically significant decrease in the relative expression of GFRα1 between dilated and collapsed STs ($p<0.001$) indicating an abnormal number of spermatogonial stem cells (SSC) or spermatogonia. A set of 22 miRNA were identified to be differentially expressed and linked to known signaling pathways in Sertoli cells and SSCs.

CONCLUSIONS: Our data supports the hypothesis that unique miRNA profiles support normal SSC division that correlate into islands of spermatogenesis, especially in men with NOA. This data in conjunction with previous observations that SSCs are likely present in patients with SCO offers new targets for further research and possible therapeutic intervention.

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SIGNIFICANT IMPACT OF BODY MASS INDEX ON A MODIFIED SPERM MOTILITY-MORPHOLOGY ALGORITHM. W. Roudebush[a,b] L. K. Hill.[b] [a]Biomedical Sciences, University of South Carolina School of Medicine Greenville, Greenville, SC; [b]Regional Urology, Greenville Health System, Greenville, SC.

OBJECTIVE: Body mass index and semen parameters have both been of interest for predicting pregnancy outcomes. No one semen parameter has been found to be highly diagnostic of male subfertility. We have previously reported that sperm motility index (SMI), which accounts for both velocity and linearity, can describe sperm motility more specifically than simply motile or non-motile. SMI and total-motile sperm counts both have a positive association with IUI pregnancy outcomes. While BMI has been reported to have a significant relationship with semen parameters, no data is available associating BMI with sperm motility index and sperm morphology. The study objective was to determine if body mass index impacts the sperm motility index with morphology incorporated into the SMI algorithm.

DESIGN: Retrospective cohort study in patients undergoing a semen analysis in a tertiary fertility clinic.

MATERIALS AND METHODS: We analyzed data on semen samples from 53 men. The data collected included patient height (M) and weight (Kg), semen volume, sperm concentration, percent sperm motility, percent sperm morphology (normal forms). Sperm motility-morphology index (SMMI) was calculated as follows: SMMI = (percent motility*sperm progression*percent morphology).

RESULTS: Mean BMI was 27.5 and the mean sperm motility-morphology index (SMMI) was 8.9. Regression analysis showed a significant ($P=0.027$) relationship between BMI and the SMMI.

CONCLUSIONS: Increased body mass indices have a negative impact on the sperm motility-morphology index. Additional research is warranted to see how this association between BMI and sperm motility-morphology index impacts pregnancy outcomes.

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CAPACITATION DEFECTS ARE COMMON IN MEN QUESTIONING THEIR FERTILITY AND ARE INDEPENDENT OF STANDARD SEMEN ANALYSIS PARAMETERS. A. J. Travis,[a] C. Cardona,[b] A. Simpson,[b] M. A. Moody,[b] E. Seaman,[c] G. C. Ostermeier.[b] [a]Cornell University, Ithaca, NY; [b]Androvia LifeSciences, Mountainside, NJ; [c]Urology Group of New Jersey, Millburn, NJ.

OBJECTIVE: Semen analysis fails to diagnose defects in capacitation. Sperm must capacitate to be able to fertilize. Localization of the ganglioside G_{M1} (Cap-Score^{TM}) identifies cells capable of capacitating, providing a bioassay for sperm fertilizing ability (Paniza et al., ASRM 2014). However, those data were obtained solely from men seeking fertility treatment. The objectives of this study were to compare the Cap-Scores of men seeking fertility work ups versus men with known fertility, and to evaluate if Cap-Score provided novel functional data or merely tracked with standard semen analysis parameters.

DESIGN: Cohort comparison between presumed fertile (cohort 1, pregnant or recent father) and potential subfertile/infertile men (cohort 2, men questioning fertility). Relationships between Cap-Score and traditional semen measures were also explored.

MATERIALS AND METHODS: All studies approved by WIRB (20152233). Semen samples were liquefied, washed, and incubated under non-capacitating and capacitating conditions. Sperm were fixed overnight and Cap-Score determined via fluorescence microscopy. Semen quality measures were evaluated according to WHO. T-Test, ANOVA and correlation analyses were done using MS Excel (2013) and XLSTAT (2015).

RESULTS: The mean Cap-Score for cohort 1 was 35.3 (SD=7.7%; n=76 donors; 187 collections). Cap-Scores were lower for cohort 2 (31.6±8.1%; p=1.0E-03), with 33.6% (41/122) having Cap-Scores > 1 SD below the mean for cohort 1, versus an expected 16%. For cohort 2, no relationship was observed between Cap-Score and morphology (p=0.28), motility (p=0.14) or concentration (p=0.67). 93.4% (114/122) of men in cohort 2 exhibited normal motility, yet 30.7% (35/114) of them had Cap-Scores > 1 SD below the mean for cohort 1. Similarly, 101 of 122 men (82.7%) exhibited normal concentration with 32.6% (33/101) having Cap-Scores > 1 SD below the mean for cohort 1.

CONCLUSIONS: These results show that capacitation defects are common in men having difficulty conceiving and that Cap-Score provides functional data complementing traditional semen analysis. Because capacitation is required for fertilization, the Cap-Score can provide an important functional complement to standard semen analysis and may help in choosing the most appropriate fertility treatment.

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TESTOSTERONE TO ESTRADIOL RATIO CORRELATES WITH SPERM CONCENTRATION IMPROVEMENT IN HYPOGONADAL OLIGOZOOSERMIC PATIENTS TREATED WITH ANASTROZOLE. N. Abhyankar,[a] O. Shoshany,[a] C. Niederberger.[b] [a]Urology, University of Illinois at Chicago, Chicago, IL; [b]University of Illinois at Chicago, Chicago, IL.

OBJECTIVE: To investigate predictors of semen parameters improvements in oligozoospermic subfertile men.

DESIGN: Retrospective cohort study.

MATERIALS AND METHODS: We reviewed all subfertile men prescribed anastrozole at a male infertility clinic from December 2009 till March 2016. Indications for anastrozole were low bioavailable testosterone (<155ng/dl) and either a relatively elevated estrogen, a contraindication to clomiphene citrate or a ratio of testosterone to estrogen (T/E) < 10. Exclusion criteria were a history of exogenous testosterone or a sex chromosome disorder. Data on demographics, clinical & laboratory characteristics were recorded. To reduce regression to the mean bias, we selected the best pretreatment semen analysis. Paired t-test was used to compare pre and post