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OBJECTIVE: Being both thermo and redox sensitive, the transient receptor potential vanilloid 1 (TRPV1) constituted a group of relevant ion channels influencing sperm function. This study aims to investigate the expression profile of TRPV1 in sperm and its correlation with pregnancy outcome both by natural means and ART. Further, the role TRPV1 in mediating reactive oxygen species (ROS)-induced sperm function was examined.

DESIGN: Perspective case-control study and in-vitro experimental study.

MATERIALS AND METHODS: Sperm samples were collected from male partners of couples who conceived either by natural means (NC) where fertile donors (NC+, n = 10) were compared to partners of recurrent pregnancy loss (RPL; NC-, n = 7) or by ART where the spermatozoa of male partners who achieved pregnancy by IVF (IVF+, n = 10)/ICSI (ICSI+; n = 9) were compared with their respective experimental group with failed pregnancy (IVF-, n = 23/ICSI-, n = 10). TRPV1 expression was probed with immunocytochemistry and flow cytometry. Effect of TRPV1 modulators (RTX/iRTX) +/- H2O2 on sperm function and calcium influx was evaluated. A secondary in-silico analysis of TRPV1 was undertaken with candidate fertility proteins to find out the probable pathways involved. Data were analysed by 1-way ANOVA or Kruskal-wallis test depending on normality distribution of data. p < 0.05 was considered significant.

RESULTS: Reduced expression of TRPV1 in sperm of IVF+/- and ICSI+/- men with respect to NC+ men imply the relevance of TRPV1 in mediating a successful fertilization in female reproductive tract. Unsuccessful pregnancy outcome with an under expression of TRPV1 in sperm of NC-/IVF-/ICSI-men, as compared to their successful counterparts postulate the role of channel in conception and maintenance of pregnancy. Enhancement of motility and triggering of acrosomal reaction post TRPV1 agonist (RTX) treatment, suggested that this disruption of the signaling cascades in IVF+/-/ICSI+ males would explain their need to undertake assisted techniques for a successful fertilization in-vitro. A significant increment in percentage of spermatozoa with reacted acrosome was observed after H2O2 treatment +/- RTX, as compared to untreated groups. The effect was attenuated by incubating with TRPV1 antagonist iRTX, implicating the role of TRPV1 in mediating the H2O2 response. The augmented Ca2+ influx due to channel activation in H2O2 +/- RTX, was demonstrated by calcium imaging. Cross-talk between TRPV1 with fertility candidate proteins showed that networks associated with cell death and survival were primarily affected.

CONCLUSIONS: The current study is a novel work, which demonstrated that reduced expression of TRPV1 in spermatozoa of RPL and IVF/ICSI failure patients compromised their fecundity potential. Influence of TRPV1 activation on motility and acrosomal reaction is also established. This is also the first report showing the direct role of TRPV1 in mediating H2O2 induced Ca2+ influx and acrosomal reaction in spermatozoa. If validated in larger population with different semen parameters, it would have therapeutic significance especially in ART setup.

P-671 4:30 PM Tuesday, October 20, 2020

AN EVALUATION OF SEMEN PARAMETERS IN MEN WITH CONFIRMED COVID-19 INFECTION. Jordan C. Best, B.S.,1 Manish Kuchakula, B.S.,1 Thiago Fernandes Negris Lima, B.S.,1,2,3,4 Fabio Frech, B.S.,1,2 Justin K. Achua, M.S.,1 Himanshu Arora, PhD,1 Emad Ibrahim, MD, HCLD(ABB),1 Ranjith Ramasamy, MD,3 University of Miami Miller School of Medicine, Miami, FL;3 University of Miami, Miami, FL.

OBJECTIVE: Our aim was to evaluate the semen parameters of men with COVID-19 infection.

DESIGN: A prospective study was performed to evaluate the gross semen parameters in men with COVID-19 infection. Samples of saliva and semen were collected and analyzed.

MATERIALS AND METHODS: We included men age 18-70 years old who tested positive for COVID-19. Subjects were contacted by willing respondents. Participants provided sterile specimen containers that were delivered to the subject’s house with a preaddressed package included to return to our lab. The semen then underwent gross semen analysis for volume, concentration, pH and motility.

RESULTS: A total of 12 men were enrolled in the study with a median age of 35.5 IQR = (19.5) (Table 1). The median duration of infection was 37 days (IQR = 21) and 2/12 (16.7%) had associated orchitis symptoms during the infective period. For the 11/12 men who returned a semen specimen, median

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TRPV1 AS A MODULATOR OF ROS-INDUCED SPERM FUNCTION AND ITS CORRELATION WITH PREGNANCY OUTCOME (NATURAL CONCEPTION AND ART). Nirlipta Swain, M.Phi,1 Luna Samanta, Ph.D,1 Sujata Kar, MBBS MD DNB,1 Chandan Goswami, Ph.D,1 Rakesh Kumar Majhi, Ph.D,1 Smriti Sanchita, B.S.1 Redox Biology Laboratory, Department of Zoology, Ravenshaw University, Cuttack, Odisha, India.

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volume was 1.6cc (IQR = 1.65), median pH was 7.2 (IQR = 0.2), median concentration was 14 million/cc (IQR = 30.25), and median motility of 0% (IQR = 12.5).

CONCLUSIONS: We evaluated 11 men’s gross semen parameters after confirmed infection with COVID-19. The median concentration for these men is abnormally low compared to World Health Organization guidelines, and further evaluation is needed to determine the impact that COVID-19 infection can have on the testis and for what duration.

Table 1. The age, duration of infection and gross semen parameters of enrolled men.

| Subject | Age | Time of SA | Volume | pH | Concentration (million/cc) | Motility |
|---------|-----|------------|--------|----|---------------------------|---------|
| 1       | 30  | 35         | 1.6    | 7.2| 5                         | 0       |
| 2       | 39  | 27         | 3.9    | 7.2| 30                        | 32      |
| 3       | 56  | 16         | 1.1    | 7.2| 317                       | 0       |
| 4       | 31  | 37         | 1.6    | 7.2| 46                        | 0       |
| 5       | 32  | 9999       | 9999   | 9999| 9999                      | 9999    |
| 6       | 20  | 58         | 2.6    | 7.6| 22                        | 0       |
| 7       | 66  | 47         | 0.7    | 7.2| 0.72                      | 0       |
| 8       | 41  | 24         | 2.5    | 7.6| 14                        | 0       |
| 9       | 67  | 24         | 0.3    | 7.2| 33                        | 27      |
| 10      | 29  | 46         | 1.1    | 6.8| 1                         | 0       |
| 11      | 32  | 39         | 2.7    | 7.6| 1.1                       | 0       |
| 12      | 44  | 52         | 0.6    | 7.2| 1.4                       | 25      |

*p9999 is substituted for missing data

Table 1 - Testicular Delivery and Vasal Vein Ligation Effect on Clinical Outcomes

| Outcomes | No Delivery | Testicular Delivery |
|----------|-------------|---------------------|
| > 5 M/mL | Pre-op      | Testicular Delivery |
| Post-op  | Pre-op      | Testicular Delivery |
| Difference | Pre-op      | Testicular Delivery |
| < 5 M/mL | Pre-op      | Testicular Delivery |
| TUNEL    | Pre-op      | Testicular Delivery |
| Difference | Pre-op      | Testicular Delivery |

P-672: IMPACT OF TESTICULAR DELIVERY AND VASAL VEIN LIGATION ON CLINICAL OUTCOMES IN MEN UNDERGOING MICROSURGICAL VARICOCELECTOMY. Gal Wald, BA,1 Nahid Punjani, MD MPH,1 Christopher Gaffney, MD,2 Marc Goldstein, M.D.,1 James A. Kashanian, MD3 Weill Cornell Medicine, New York Presbyterian Hospital, New York, NY;4 Weill Cornell Medical College- New York Presbyterian Hospital, New York, NY;5 Center for Male Reproductive Medicine and Microsurgery, Weill Cornell Medicine, New York Presbyterian Hospital, New York, NY;6 Weill Cornell Medicine - New York Presbyterian Hospital, New York, NY.

OBJECTIVE: To assess the impact of microsurgical varicocelectomy technique on clinical outcomes in patients with severe oligospermia.

DESIGN: Retrospective data collection.

MATERIALS AND METHODS: Men diagnosed with varicocele between 2017 and 2020 were reviewed. We included men who underwent microsurgical varicocelectomy at Weill Cornell by two high-volume surgeons who differed slightly in surgical technique in addition to ligating routine dilated veins: Method 1) testicle delivery with gubernacular vein ligation, ligation of dilated veins >2.5mm, and preservation of normal vasal veins and Method 2) no testicle delivery and only ligation of markedly dilated veins in recurrent cases. Patients were stratified according to their pre-operative sperm concentration (SC): >5 M/mL and <5 M/mL, with and without azoospermia. Post-operative SC improvement and TUNEL were compared based on technique using the Wilcoxon ranked-sum test (Stata v14).

RESULTS: 313 men patients were included: a 162 with Method 1 and 151 with Method 2. The two cohorts were of similar age (35, IQR 27-42 and 34, IQR 28-39, respectively) and BMI (25.4, SD 4.0 vs 25.9, SD 4.5, respectively). For Method 1, 84 (51.9%) had bilateral surgery, 76 (46.9%) left only, and 2 (1.2%) right only. For Method 2, 63 (41.7%) had bilateral surgery, 84 (55.6%) left only, and 4 (2.6%) right only. Both methods produced a similar improvement in the TUNEL assay (p=0.33). In patients with SC >5 M/mL, there was no observed difference between Method 1 and 2 (p=0.24) post-operatively. Similarly, there was no statistical difference in patients with SC <5 M/mL (p=0.48) and after excluding azoospermic men (p=0.55).

CONCLUSIONS: Delivery of the testis and ligation of dilated vasal veins does not influence changes in semen parameters or TUNEL assay after microsurgical repair. Future studies will assess whether the differences in technique effect the short and long term recurrence rates.

P-673: PREDICTORS OF DETERIORATION OF SEMEN PARAMETERS IN MEN TREATED WITH CLOMIPHENE CITRATE FOR INFERTILITY. Christopher M. Deibert, MD, MPH,1 Jacob T. Pfeifer, BS,2 Thomas Schroeder, BA2 1University of Nebraska, Omaha, NE; 2University of Nebraska Medical Center, Omaha, NE.

OBJECTIVE: To better understand the correlations associated with decreases in Total Motile Sperm Count (TMSC) after a clomiphene challenge and predict which men would be ideal candidates for clomiphene citrate (Clomid) therapy.

DESIGN: We retrospectively analyzed male patients treated for infertility with clomiphene citrate at the University of Nebraska Medical Center from 2015-2019. We excluded patients with no follow-up semen analysis or hormonal labs, concurrent HCG treatment, and/or prior varicocele surgery. Our final samples size was 45 patients, from this sample we tracked testosterone response and the men’s semen analysis parameters.

MATERIALS AND METHODS: 45 patients were categorized into 7 groups based on changes in the semen parameter TMSC: increased >10 million, increased >5 million, increased >2 million, decreased >2 million, decreased >5 million, decreased >10 million, or stayed the same. From these groups we tracked how many men doubled their TMSC and performed statistical analysis to correlate Testosterone response and TMSC response while controlling for monal labs, concurrent HCG treatment, and/or prior varicocele surgery.

RESULTS: While using Clomiphene citrate, 57.8% of patients (n=25) showed an increase in total motile sperm production with 48.9% of men doubling their sperm production. However, 24.4% of men (n=11) had no increase in sperm production and 17.8% of men (n=8) paradoxically had a decrease in sperm production. Of the patients who had an increase of >10 million, 89.5% doubled their initial TMSC. Of those men that had a decrease in sperm production, 37.5% had a TMSC that decreased by greater than 10 million (Table 1). Increased testosterone response showed positive correlation with increased TMSC.

CONCLUSIONS: Clomiphene citrate is a well-established option for the treatment of male hypogonadism. However, nearly 1 in 5 men experience a paradoxical effect resulting in decreased TMSC. Though counseling on