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OBJECTIVE: The use of DNA fragmentation assays for infertility patients remains controversial. Guidelines published by ASRM/AUA in October 2020 recommend offering testing in the setting of recurrent pregnancy loss or previous IVF cycle with poor fertilization or embryo development. The primary testing modality used was sperm chromatin structure assay (SCSA, 89%), typically performed as a send-out test. Once offered the test, respondents estimated that an average of 73.3% of patients completed testing. Though many providers (30.6%) did not know the cost of the test, others estimated it to range between $100-300 (24.5%) or $300-500 (34.7%). Further, respondents report that the most common reason for not offering testing was due to cost (59.2%). This was followed by the patient perceiving that the test would not change treatment plans (29.4%). When changes in treatment were offered, these most often included oral antioxidants (59.2%) and IVF with (51%) or without (36.7%) testicular sperm. Other common interventions were IVF with microfluidic sperm sorting (28.6%) or frequent ejaculation (28.6%).

CONCLUSIONS: Despite the release of ASRM/AUA guidelines in 2020, the field remains divided on their utility in clinical practice. High costs and unclear interventions remain factors limiting their use from both a provider and patient standpoint.

IMPACT STATEMENT: These data provide insight into barriers to implementation and standardization of practice with regards to DNA fragmentation, highlighting the need for further translational research into these assays and whether pregnancy outcomes could improve with targeted testing and specific interventions.

**O-58 7:03 AM Monday, October 24, 2022**

**THE EFFECT OF LEPTIN ON TESTICULAR MICRO-IMMUNE-ENVIRONMENT IS INFLUENCED BY BMI.** Deepta Seetharam, PhD.1  Alexandre Dullea, MS.2 Kajal Khodamoradi, PhD.2 Ranjith Ramasamy, M.D., M.B.B.2 Himanshu Arora, B.SC., M.S.C., PH.D.2 1Postdoc; 2University of Miami Miller School of Medicine, Miami, FL.

OBJECTIVE: Testosterone (T) deficiency is estimated to affect up to 20% of males. T is primarily produced by Leydig Cells (LC) and LC dysfunction can lead to T deficiency (TD). The development and function LC is influenced by paracrine factors released by the testicular micro-environment (TME), including Leptin. Our previous work has demonstrated the role of Leptin in the development of LC into Adult Leydig Cells, capable of producing T. However, investigating the role of low dose Leptin vs high dose Leptin in the testicular microimmune-environment (TMIE) in mice with a normal body habitus. There is also significant research linking obesity and TD. However, the effect of leptin on TMIE in different BMI conditions is not understood. Therefore, we evaluated the effects of Leptin on the TMIE in different BMI conditions (lean and obese).

MATERIALS AND METHODS: We evaluated the effect of leptin on the TMIE using a murine model C57/BL mice. The mice were fed with high-fat and low-fat diet for 8 weeks (n=10) to make them obese and lean for the study. The weights of the animal were measured weekly to ensure the proper obese or lean body habitus. Following 8 weeks of the diet, we injected leptin (10ug and 100ug) intraperitoneally into the obese and lean group for 7 days. After 7 days of leptin injections, the mice were euthanized, blood and spleen were collected. Blood was subjected to differential complete blood count (CBC) profiling and spleen was subjected to comprehensive immunophenotypic panels.

RESULTS: The CBC profiling data was significant for differences in the experimental mice when compared to control in six CBC values. In obese under low dose leptin, low blood cells and platelets were elevated (p<0.05). In the obese, high-dose leptin group, there were significantly more monocytes present (p<0.05). In the lean, high-dose leptin group, neutrophils were increased, and platelets were decreased (p<0.05). Finally, in the lean high-dose leptin group, red blood cells were increased (p<0.05). Immuno-phenotypic panels also highlighted a differential impact of Leptin on several immune cells (Myeloid derived suppressor cells, T-cells (CD8, CD4), PMN-MDSCs, mMDSCs) with respect to BMI.

CONCLUSIONS: The results demonstrate that low dose of leptin has a differential impact on the TMIE, as demonstrated by the differences in CBC profiling, and immune phenotypic panels which is specifically influenced by BMI. Future studies will explore the influence of leptin on hormonal regulation in different BMI conditions.

IMPACT STATEMENT: This is the first study of its kind to evaluate impact of Leptin in regulating testicular immune microenvironment with respect to BMI. Further research will open new doors to the use of Leptin as a personalized medicine for men with testosterone deficiency.

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