

tion' (GDC) for comparison. To analyze the differential expression levels over time in FDC and GDC groups, a Generalized Linear Model was used considering DIM as a fixed factor. The gene expression of all members of IL-1 family showed no significant association with delayed conception. However, the association between the protein expression of IL-1 β and IL-1RA in glandular epithelium (GE) and delayed conception was significant. Then, the GLM showed no significant differences in GE between 45 and 60 DIM, both in the FDC and GDC group. These results suggest a potential role of some members from IL-1 family, as IL-1 β and IL-1RA, in the mechanisms involved to early conception.

528. (121) LEPTIN REGULATES THE EXPRESSION OF GENES RELATED TO LIPID STORAGE IN SERTOLI CELLS

Marina Ercilia Dasso, Gustavo Marcelo Rindone, Agustina Gorga, Cecilia Lucía Centola, Eliana Herminia Pellizzari, María del Carmen Camberos, María Noel Galardo, Silvina Beatriz Meroni, María Fernanda Riera.

Centro de Investigaciones Endocrinológicas "Dr. César Bergadá" (CEDIE)-CONICET/FEI/División de Endocrinología, Hospital de Niños "Ricardo Gutiérrez", CABA, Argentina

Sertoli cells (SC) are necessary to provide an adequate environment for germ cell development. SC actively metabolize glucose but most of it is converted to lactate, an energy source for germ cells. SC also oxidize fatty acids (FA) to sustain their energy status. SC have numerous lipid droplets (LD), which are thought to be the site of storage of FA. In this context, we have demonstrated that leptin (Lep), an adipokine that is present in the testis, increases triacylglycerols (TAGs) and LD content in SC. Several proteins such as the FA transporter FAT/CD36, the enzymes involved in the synthesis of TAGs (glycerol-phosphate-acyl-transferases (GPATs) and diacylglycerol-acyl-transferase 1 (DGAT)), and the proteins associated with LD formation (PLINs) have a role in lipid storage. The aim of this study was to analyze the effects of Lep on the expression of proteins involved in FA storage. SC isolated from 20-day-old rats were cultured and maintained under basal conditions (B) or stimulated with Lep (100 ng/ml). mRNA levels of FAT/CD36, GPAT1-4, DGAT1 and PLIN1-3 were analyzed by RT-qPCR. Results are expressed as mean \pm SD, n=3, (* p<0.05 vs B). Lep increased FAT/CD36, GPAT3, and PLIN1 mRNA levels at 48 h (1.8 \pm 0.2*; 1.5 \pm 0.2* and 1.8 \pm 0.1* fold variation vs. B). To elucidate which signaling pathways are involved in Lep regulation of FA storage, SC were treated with Lep in the presence of 1 μ M Stat3 (STAT3 inhibitor), 1 nM Rapamycin (mTORC1 inhibitor) or 50 μ M T0070907 (PPAR γ antagonist). Then, LD content was analyzed by Oil Red O staining. Neither of the inhibitors tested modified leptin-stimulated LD number. Altogether, the results suggest that Lep regulates the expression of genes involved in FA transport, TAG synthesis, and LD formation as a mechanism to increase lipid storage. Further studies will be necessary to clarify the signaling pathways participating in the above-mentioned regulation. (PICT2015-228; PICT2018-1291).

529. (140) INTERFERON γ , IL-17, AND IL-1 β IMPAIR SPERM MOTILITY AND VIABILITY AND INDUCE SPERM APOPTOSIS

María Sol Martínez¹, Daniela Andrea Paire¹, Silene Silveira-Ruiz¹, Andrea Daniela Tissera², Rosa Ines Molina², José Javier Olmedo³, Virginia E. Rivero¹, Rubén Darío Motrich¹.

¹ CIBICI-CONICET, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Argentina.

² Laboratorio de Andrología y Reproducción (LAR), Córdoba, Argentina.

³ Fundación Urológica Córdoba para la Docencia e Investigación Médica (FUCDIM), Córdoba, Argentina.

Urogenital inflammation is a known cause of male infertility. Increased levels of inflammatory cytokines, leukocyte counts and oxidative stress are highly detrimental for sperm quality thus compromising male fertility. Although cytokines affect sperm by recruiting and activating leukocytes consequently inducing oxidative stress, scarce to absent data have been reported about the putative direct effects of inflammatory cytokines on spermatozoa. Herein, we ana-

lyzed whether IFN γ , IL-17, IL-1 β , and IL-8 can directly impair human sperm motility and viability. Fractions of viable and motile spermatozoa from normospermic healthy donors were in vitro incubated with recombinant human IFN γ , IL-17, IL-1 β or IL-8 and sperm motility, viability and apoptosis were analyzed. Sperm exposed to different concentrations of IFN γ , IL-17 and IL-1 β , or a combination of them, for either 1 or 3 h showed significantly reduced motility and viability with respect to sperm incubated with vehicle. Moreover, the exposure to IFN γ , IL-17 and IL-1 β resulted in significantly higher levels of early and/or late apoptotic and/or necrotic spermatozoa. Interestingly, no significant differences in sperm motility, viability and apoptosis were observed in sperm incubated with different concentrations of IL-8, for either 1 or 3 h, with respect to sperm incubated with vehicle. In conclusion, our results indicate that IFN γ , IL-17 and IL-1 β directly impair sperm motility and decreases viability by inducing sperm apoptosis. Our results suggest that examining inflammatory cytokines in semen would be an additional helpful tool for the diagnostic workup of male infertility.

530. (141) SEMINAL LEVELS OF INFLAMMATORY CYTOKINES AND SPERM QUALITY IN PATIENTS RECOVERED FROM COVID-19

Fernando N. Ferreyra¹, María S. Martínez¹, Daniela A. Paire¹, Andrea D. Tissera², Rosa I. Molina², José J. Olmedo³, Virginia E. Rivero¹, Rubén D. Motrich¹

¹ CIBICI-CONICET, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Argentina.

² Laboratorio de Andrología y Reproducción (LAR), Córdoba, Argentina.

³ Fundación Urológica Córdoba para la Docencia e Investigación Médica (FUCDIM), Córdoba, Argentina.

The novel coronavirus disease (COVID-19) pandemic is an emerging global health threat that can cause multiorgan damage and shows a higher risk for men than women. Despite the considerable knowledge gained about the underlying pathophysiology, little is known about the putative andrological consequences of COVID-19. Thus, we herein prospectively evaluated sperm quality parameters and levels of inflammatory cytokines in semen in a cohort of 293 reproductive-aged male patients who had recovered from COVID-19 and in 63 control individuals. Semen specimens were collected by masturbation, semen analysis performed according to the WHO guidelines, and inflammatory cytokines quantitated by ELISA.

Significantly higher levels of IL-1 β , TNF α and IFN γ were found in semen from patients recovered from mild and/or severe COVID-19 with respect to control individuals (p<0.02, p<0.02 and p<0.001, respectively). Moreover, patients recovered from mild and/or severe COVID-19 showed significantly reduced semen volume (p<0.001), lower total sperm counts (p<0.03), and impaired sperm motility (p<0.02) and viability (p<0.01). Remarkably, no significant differences were found in semen leukocyte counts from patients and controls (p<0.001).

We provide experimental evidence indicating that COVID-19 associates with increased levels of inflammatory cytokines in semen and significant alterations in sperm quality. Although it should be interpreted carefully, these findings indicate an adverse but potentially reversible consequence of COVID-19 on sperm quality. Although beyond our current understanding of the disease, our data suggest that the reproductive function of patients recovering from COVID-19 should be precisely followed and evaluated to detect and avoid more serious reproductive problems in the future.

531. (146) EFFECT OF MATERNAL DIETS ENRICHED IN PU-FAS ADMINSTRATED TO DIABETIC RATS DURING EARLY POSTIMPLANTATION ON STRUCTURES INVOLVED IN DECIDUAL HISTOTROPHIC FUNCTION AND FETO-PLACENTAL GROWTH

Sabrina Lorena Roberti, Cintia Romina Gatti, María Laura Leonardi, Romina Higa, Alicia Jawerbaum.

Laboratory of Reproduction and Metabolism - CEFyBO-CONICET. School of Medicine, University of Buenos Aires, Buenos Aires, Argentina.

Maternal diabetes induces alterations in decidualization, which may impact on decidual histotrophic function that include key roles of the uterine glands (UG) and the glycogenic area (GA). uNK cells, involved in angiogenesis and vessels remodeling, are needed for an adequate decidualization and feto-placental development. We previously found that maternal diets enriched in polyunsaturated fatty acids (PUFAs) prevent increased resorption rates in diabetic pregnancies. Aim: To evaluate the effect of diets enriched in sunflower and chia oil (rich in n-6 and n-3 PUFAs respectively) administered during early postimplantation to diabetic rats on PAS staining of the GA and UG and on the number of uNK cells at day 9 of pregnancy and on decidual, fetal and placental growth at day 14 of pregnancy. Methods: Pregestational diabetes was induced in Wistar rats by streptozotocin (50 mg/kg). On days 7 to 9 of pregnancy diabetic rats received a standard diet or diets enriched in 6% of sunflower or chia oil. On day 9 of pregnancy GA, UG and uNK cells in the decidua were evaluated by PAS staining. On day 14 of pregnancy the fetal cephalic length was measured and the decidua and placenta were weighted. Results: At day 9 of pregnancy PAS staining of GA ($p < 0.001$; 74%) and UG ($p < 0.05$; 64%) and the number of uNK cells ($p < 0.001$; 62%) were reduced in diabetic rats, alterations prevented by the PUFAs enriched diets. At day 14 of pregnancy a decreased fetal cephalic length in diabetic rats (7.5%; $p < 0.05$) was prevented by the sunflower oil supplementation. Both decidual (18.3%; $p < 0.05$) and placental (12.4%; $p < 0.05$) weights were decreased in the diabetic group. The diet enriched in sunflower oil prevented the reduced decidual weight while the diet enriched in chia oil prevented the reduced placental weight. Conclusion: The early postimplantation is a key period for decidual and feto-placental development, affected by maternal diabetes, and in which dietary treatments can exert beneficial effects.

532. (150) LEUKOCYTES INFILTRATION CHAPERONES HYPERTHYROIDISM-INDUCED INCREASE OF FETAL GROWTH, PLACENTAL CHANGES, AND IMPAIRED OFF-SPRING DEVELOPMENT

Sánchez MB, Neira FJ, Moreno Sosa MT, Michel MC, Pirotton EO, Soaje M, Valdez SR, Jahn GA, Mackern-Oberti JP. *Instituto de Medicina y Biología Experimental de Cuyo, Universidad Nacional de Cuyo (IMBECU-CCT-CONICET).*

Hyperthyroidism (HP) induces reproductive disorders like preterm birth and lactation failures and could influence immune cells homeostasis. Therefore, our work aimed to evaluate the role of thyroid hormones in leukocytes in milk and placenta. To this end, 12 weeks old *Wistar* rats were injected with T4 (hyper) and euthanized on day 19, 20 of gestation (G19 and G20), and day 2 of lactation (L2). Placenta and milk immune cells (CD45+, CD3+, CD11b/c+) were analyzed by flow cytometry, and mRNA hormone receptors and cytokines by qPCR. Histological analysis of the mammary gland was performed. We observed that fetuses of hyper group (hyper) weighed more in G19 and G20 ($p < 0.01$ $p < 0.001$) compared to controls (Co). In placenta of hyper we showed a decrease in $\beta 2$ thyroid receptor expression ($p < 0.05$) in G19 with an increase in prolactin receptor expression on G20 ($p < 0.05$). Furthermore, in hyper prolactin receptor, progesterone receptor, glucocorticoid receptor, and VEGF expression were higher in G20 vs G19 ($p < 0.05$ $p < 0.01$ $p < 0.05$). On G19, the percentage and absolute count of placental leukocytes were higher in hyper ($p < 0.05$) vs Co. In Co, on G20, we showed an increase in leukocyte infiltration compared with G19 ($p < 0.01$), however, we did not observe this in hyper. On lactation, the hyper offspring presented lower weight on days 1 and 2 ($p < 0.001$). In L2, milk had an increase in the percentage of CD45+ cells in hyper ($p < 0.05$). In addition, CD3+ cells/ μ l increased respect to the Co while the number of CD11 b/c+ cells/ μ l diminished ($p < 0.05$). In the hyper, the alveolar area and mammary adipose tissue were lower while mammary connective tissue was higher than Co. These results suggest that immunity may accompany alterations in fetal growth and in placental hormonal receptors expression at the end of pregnancy induced by HP. However, their relationship with preterm birth and early lactation impairment needs to be addressed. Placenta and milk leukocytes would be impacted by HP.

533. (158) EVOO RESTORES THE STEROL REGULATORY ELEMENT-BINDING PROTEIN 2 CHOLESTEROL PATHWAY OVER-STIMULATED BY A HFD IN RABBIT TESTIS

Abi Karenina Funes¹, Virginia Avena¹, Regina Colombo R¹, María Monclus^{1,2}, Inés Conte¹, Paola Boarelli³, Estefanía Saez Lancellotti^{1,2}, Miguel Fornés².

¹ Laboratorio de Investigaciones Andrológicas de Mendoza (LIAM), IHEM, FCM, Universidad Nacional de Cuyo - CONICET. ² Centro de Investigaciones de la Universidad del Aconcgua (CIUDA), Universidad del Aconcgua. ³ Laboratorio de Enfermedades Metabólicas (LEM), Universidad Maza.

Male fertility depends on cholesterol (chol) homeostasis. Chol is essential for testosterone synthesis and spermatogenesis, and must be maintained in an optimal range for proper functioning of the testes. Rabbits on a high-fat diet (HFD) exhibit hypercholesterolemia associated with poor seminal quality, related to cholesterol overload in seminiferous tubule cells. Sterol regulatory element-binding protein (SREBP)-2 governs the cholesterol pathway in testis and it is sensitive to dietary lipids. We have previously seen that Extra Virgin Olive Oil (EVOO) supplementation improved semen parameters affected by high fat diet. The aim of this study was to explore the effects of EVOO supplementation to HFD on rabbit testes at the molecular level, analyzing the SREBP-2 pathway. Male New Zealand White rabbits were fed commercial rabbit pellet (normocholesterolemic rabbits: NCR), a high-fat diet (plus 14% bovine grease, hypercholesterolemic rabbits, HCR), or 7% bovine grease plus 7% EVOO (HCR + EVOO). Serum lipid levels, body weight and seminal parameters were measured, and mRNA and protein levels of the SREBP-2 pathway were assessed by PCR, Western blotting and immunofluorescence. At 12 months of diet, HCR rabbits show unexpected increase in the expression of SREBP 2 and downstream molecules of the pathway: HMGCR (3-hydroxy-3-methyl-glutaryl-coenzyme A reductase) and LDLR (low-density lipoprotein receptor). Interestingly, the addition of EVOO showed a recovery in the expression of the mentioned proteins. In addition, preliminary studies of SREBP-2 regulatory molecule, INSIG1 (Insulin induced gene 1), and the molecule responsible for the esterification of cholesterol, SOAT2 (Sterol O-Acyltransferase 2), showed no significant changes between diets so far. The data showed that dietary supplementation with EVOO promoted testicular improvements by modifying the expression of cholesterol pathway regulated by SREBP2.

534. (160) PREVALENCE AND ASSOCIATION OF CHLAMYDIA TRACHOMATIS, UREAPLASMA SPP. AND MYCOPLASMA HOMINIS UROGENITAL INFECTIONS IN PATIENTS WITH PRIMARY INFERTILITY

Daniela Andrea Paira¹, Andrea Daniela Tissera², Rosa Isabel Molina², José Javier Olmedo³, Rubén Darío Motrich¹.

¹ CIBICI-CONICET, Facultad de Ciencias Químicas, Universidad Nacional de Córdoba, Argentina.

² Laboratorio de Andrología y Reproducción (LAR), Córdoba, Argentina.

³ Fundación Urológica Córdoba para la Docencia e Investigación Médica (FUCDIM), Córdoba, Argentina.

Currently, infertility affects 15-20% of couples of reproductive ages worldwide, with women and men equally contributing to infertility cases. Urogenital infections are known causes of infertility. In fact, infertility have been associated to *Chlamydia trachomatis* (Ct), *Ureaplasma* spp. (Uu) and *Mycoplasma hominis* (Mh) urogenital infections. However, evidence from large studies assessing their prevalence and putative associations in patients with infertility is still scarce. Herein, we aimed to evaluate the prevalence and associations of Ct, Uu and Mh infection in women and men seeking care for infertility. A cohort of 5464 patients with a diagnosis of couple's primary infertility and 404 control individuals were enrolled. Cervical-swab and semen samples were collected from female and male individuals, respectively, and infections assessed by PCR or culture. Association between infections and demographic were analysed by Chi-square test. The prevalence of Ct, Uu and Mh urogenital infection was significantly higher in patients than in control individuals (5.3%, 22.8% and 7.4% versus 2.0%, 17.8% and 1.7%, respective-