

Colloquio

JOURNAL OF JENDOCRINOLOGICAL INVESTIGATION

Vol. 35, Suppl. to No. 8, 2012

X NATIONAL CONGRESS OF THE
ITALIAN SOCIETY OF ANDROLOGY
AND SEXUAL MEDICINE

Lecce, Italy, November 15-17, 2012

ON-LINE SUBMISSION
<http://mc.manuscriptcentral.com/jei>
ELECTRONIC VERSIONS OF ARTICLES ON WWW.JENDOCRINOLINVEST.IT



Visit Editrice Kurtis journals online at www.kurtis.it

OC013

INVOLVEMENT OF MITOCHONDRIAL DYSFUNCTION IN SPINAL CORD-INJURY RELATED ASTHENOZOOSPERMIAA. Barbonetti¹, M. R. C. Vassallo¹, A. De Mutiis¹, A. C. Giornetta¹, S. Francavilla¹, F. Francavilla¹¹Andrology Unit, Department of Internal Medicine, University of L'Aquila

Introduction The multi-factorial etiology of asthenozoospermia occurring in men with spinal cord injury (SCI) includes an adverse impact of seminal plasma (SP) on sperm motility. We investigated the effect of SP from SCI men on donor sperm mitochondrial activity and its reflection on motility. **Methods** 22 SP were recovered from ejaculates obtained from SCI men by penile vibratory stimulation. Seminal fructose levels were determined by spectrophotometry. SP samples from SCI men and from healthy donors were tested on donor motile sperms for their effect on: motility, evaluated with CASA, vitality (with eosin staining), mitochondrial membrane potential (MMP), at flow cytometry (FC) with JC1, mitochondrial ROS generation (mROS), at FC with MitoSOX red, membrane lipid peroxidation, at FC with BODIPYc11 and caspase activation, at FC with permeable FITC-peptides (LEHD-FMK and DEVD-FMK), binding to activated caspase-9 and -3, respectively. **Results** Only SP with both low fructose levels and inhibitory effect on MMP (N=13) affected donor sperm motility 1h after coincubation (motile sperms: 20.5±12.7% vs 71.8±13.3% in control SP, p<.001). This effect was reverted by washing in medium containing glucose in spite of persistently low MMP, as indicated by the % of sperms with red JC1 fluorescence (38.9±5.0% vs 79.4±7.2% in washed controls, p<.001). In the same samples, motility decreased with respect to controls 20 h after washing and resuspension in the glucose-containing medium and this was associated to vitality loss. MMP-disrupting SP also enhanced mROS, which was associated to membrane lipid peroxidation, when evaluated at 6h, but not at 1h, after washing from SP. Activation of caspase-9 (mitochondrial caspase) and -3 (executioner caspase) accompanied the MP loss. **Conclusions** A double energetic blockage (glycolysis/mitochondrial respiration) represents a metabolic determinant of the early adverse effect exerted by SP from SCI men on sperm motility. Mitochondrial dysfunction-related apoptotic/oxidative events might account for later consequences on motility/vitality.

OC014

RELATIONSHIP BETWEEN SEMINAL PLASMA PCB CONCENTRATIONS AND SPERM PARAMETERSM. Altomare¹, L. O. Vicari¹, F. Giaccone¹, R. A. Condorelli¹, M. Fiore², M. Zuccarello², M. Ferrante², S. Sciacca², R. D'Agata¹, S. La Vignera¹, A. E. Calogero¹, E. Vicari¹¹Department of Medical and Pediatric Sciences, University of Catania, ²Department of Hygiene and Public Health "G.F. Ingrassia", University of Catania

Background: Polychlorinated biphenyls (PCBs) banned persistent organic pollutants, have been shown to alter sperm parameters and DNA integrity. Serum PCBs levels are an integrated measure of the overall exposure over the previous years. Few data have been reported on the relationship between seminal plasma PCBs levels and sperm parameters. **Objectives:** To evaluate the concentrations of PCBs in the seminal plasma in men living in an industrial area (IA) and in men living in a non-industrial area (NIA). **Subjects and methods:** Ninety six men with median age of 33 years, living in Melilli (IA in Eastern Sicily, Italy), and 83 men with median age of 30 years, living in Regalbuto (NIA in Central Sicily, Italy) were recruited. Seminal plasma PCB concentrations were measured by gas-chromatography with electron capture detector (ECD) and confirmed by the reading of the congeners in a double column. As previously suggested, PCB congeners were grouped in: estrogenic (1), dioxin-like (2), and enzyme-inducing (3). Conventional sperm parameters were evaluated according to the WHO 2010 guidelines. Non-conventional parameters were assessed by flow-cytometry. **Results:** The most represented congeners (74, IA; 105, NIA) were both of group 2. Detectable amounts of two or more congeners were found in 46% (IA) and 52% (NIA) men. Median levels of all congeners were significantly higher in IA vs. NIA (5.2 vs. 1.2 µg/L). The most toxic and best studied congeners (118, 138, 153) were mostly found in IA vs. NIA, except for the 153 (not found in IA). Asthenozoospermia was found in 58% (IA) and 37% (NIA) of men. 43% (IA) and 23% (NIA) of men had a high sperm chromatin compactness. **Conclusions:** Exposure to PCB is potentially detrimental to sperm parameters. The levels of these contaminants in the seminal plasma appear to be higher in the environmental risk areas. **Ackn:** this study is supported in part by funding from Frisone Foundation

PP017

ASSOCIATION BETWEEN MULTIPLE SCLEROSIS, ADDISON'S DISEASE AND TESTICULAR LEYDIG CELL TUMOR: CHANCE OR COMMON PATHOGENESIS?C. Di Bisceglie¹, E. Castellano¹, M. Tagliabue¹, F. Lanfranco¹, C. Manieri¹¹SCDU Endocrinologia, Diabetologia e Metabolismo, Dipartimento di Medicina Interna, Università di Torino

We report a case of a 32-year-old male patient who underwent left orchifuniclectomy for testicular swelling. Histological examination revealed a Leydig cell tumor with vascular and rete testis infiltration. Pre-surgery scrotal ultrasound showed a 15 mm lesion in the left testis and a few cysts in the right testis. Chest and abdomen CT scan was negative. Beta-hCG, alpha-fetoprotein, FSH, LH, estradiol, and total testosterone both before and after surgery were within the normal range. No oncological treatment was performed. Six months after surgery, scrotal ultrasound of the right testis showed the presence of a hyperechoic solid nodule 4 mm in diameter, two hypoechoic formations of 3-4 mm, and a 2-3 mm cyst. The patient came to our attention to perform sperm cryopreservation before exploratory surgery on the right testis. Semen parameters were normal. Patient's history included multiple sclerosis treated with beta-interferon. An overt skin hyperchromia was present. Suspecting a "testicular adrenal rest tumor" in congenital adrenal hyperplasia, the patient underwent adrenal function hormonal evaluations, showing primary adrenal insufficiency. Anti-21-hydroxylase antibodies were negative. The patient reported no previous TBC infection. The patient was put under substitution therapy with cortisone acetate. At 6-month follow-up the testicular lesions were unchanged. Considering the association between multiple sclerosis and Addison's disease, genetic evaluation was performed along with serum very-long-chain fatty acids (VLCFA) dosage in the suspect of adrenoleukodystrophy. VLCFA levels were normal. Genetic evaluations are currently ongoing. If genetic testing confirms adrenoleukodystrophy, this will prompt the need to consider such diagnosis in adult patients with clinical features of leukoencefalopathy and primary adrenal insufficiency.

PP018

EVALUATION OF ENDOTHELIAL DYSFUNCTION IN PATIENTS WITH KLINEFELTER SYNDROMEV. Bullara¹, R. A. Condorelli¹, F. Giaccone¹, S. Tumino¹, D. Valenti¹, E. Mangione¹, E. Vicari¹, S. La Vignera¹, C. Giordano², A. E. Calogero¹¹Department of Medical and Pediatric Sciences, University of Catania, ²Section of Endocrinology, Faculty of Medicine and Surgery, University of Palermo

The aim of this study was to evaluate the effects of testosterone replacement therapy (TRT) on the sexual function of middle-aged patients with acquired pre-pubertal hypergonadotropic hypogonadism (HrHy) and patients with Klinefelter syndrome (KS). A selected series of middle-aged hypogonadal patients who had not yet begun TRT were recruited for this study. This included 7 patients with acquired pre-pubertal HrHy and five KS patients who were matched by age and body mass index. All patients underwent an andrological evaluation, which included the administration of the IIEF-5 questionnaire and the evaluation of dynamic penile echo color Doppler. In addition, the percentages of circulating apoptotic endothelial microparticles (EMPa) and a late phenotype of endothelial progenitor cells (EPCs) were also evaluated at baseline and 6 months after the TRT administration. After 6 months of TRT, patients with HrHy had a mean IIEF-5 scores and a peak systolic velocity at the dynamic penile echo color Doppler significantly higher and a mean acceleration time significantly lower ($p < 0.05$) than those of patients with KS ($p < 0.05$). In addition, patients with HrHy had mean EMPa and EPCs serum concentrations significantly lower than those of patients with KS ($p < 0.05$). The latter patients showed a statistically significant improvement of the mean IIEF-5 score and of dynamic echo color Doppler penile parameters ($p < 0.05$), but not of EMPa or EPCs serum concentrations following TRT. In conclusion, these results suggest that erectile dysfunction in KS can improve with TRT, although this improvement is greater in HrHy patients, whereas, TRT does not have any significant impact on the severity of endothelial dysfunction in KS patients.

PP021

FSH RECEPTOR GENE POLYMORPHISMS IN FERTILE AND INFERTILE MEN FROM EASTERN SICILY

L. Tamburino¹, S. La Vignera¹, V. Tomaselli², D. Valenti¹, N. Barone¹, V. Conoscenti¹, C. Nicoletti¹, S. Quartararo¹, S. Tumino¹, E. Vicari¹, A. E. Calogero¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²Department of Political and Social Sciences, University of Catania

Background: Follicle-stimulating hormone (FSH) regulates spermatogenesis by a specific receptor (FSHR). Two single nucleotide polymorphisms (SNP) in exon 10 of FSHR gene influence FSHR sensitivity in women: Thr307Ala (T307Ala) and Asn680Ser (N680S). In contrast, no effects of these SNPs on male serum FSH and spermatogenesis have been proven. **Objectives:** The aim of this study was to evaluate the frequency distribution of the FSHR polymorphisms in infertile men from Eastern Sicily and their role on serum FSH levels. **Subjects and methods:** The SNPs were analyzed in 48 men with oligoasthenozoospermia (OAT) and in 33 normozoospermic controls by direct automated DNA sequencing of every PCR product containing the specific SNP. **Results:** An almost complete linkage disequilibrium was detected between positions 307 and 680, except for one patient. Their genotype frequencies were not significantly different between OAT men [22.9% (Thr/Thr-Asn/Asn), 56.3% (Thr/Ala-Asn/Ser) and 20.8% (Ala/Ala-Ser/Ser)] and fertile men [36.4%, 42.4% and 21.2%, respectively]. The FSHR genotypes did not result in different serum FSH and testosterone concentrations both in normozoospermic men and in men with OAT. The frequency distribution of T307A and N680S genotypes in Sicilian men (28.4% for TN/TN, 50.6% TN/AS and 21% for AS/AS) was not statistically different from that reported in men from Tuscany (for T307A: 29.7% (TT), 46.5% (TA) and 23.8% (AA) and for N680S: 30.7% (NN), 43.6% (NS), 25.7% (SS) (International HapMap Project). **Conclusions:** The FSHR gene Thr307Ala and Asn680Ser polymorphisms were not differently distributed in Sicilian men with oligozoospermia and normozoospermia and did not correlate with serum FSH concentrations. The heterozygous genotype TN/AS was the most represented.

PP022

A NOVEL MUTATION OF THE ANDROGEN-RECEPTOR GENE IN A XY FEMALE WITH COMPLETE ANDROGEN INSENSITIVITY SYNDROME AND BILATERAL HAMARTOMA.

P. Di Giacinto¹, A. Ferlin², E. Cicerone³, L. Chioma¹, L. Gnassi⁴, C. Foresta², C. Moretti¹

¹Medicina dei Sistemi Università di TorVergata, ²Medicina Molecolare Università di Padova, ³Medicina dei Servizi Ospedale Fatebenefratelli Isola Tiberina, ⁴Medicina Sperimentale Università La Sapienza

The androgen insensitivity syndrome is an X-linked recessive disorder of male sexual development in 46, XY individuals. We report the case of a 48 year-old woman with primary amenorrhea and normal female phenotype. The physical examination showed normal female external genitalia, normal breast development, lacking pubic and axillary hair, a blind-ended vagina and bilateral inguinal hernias. Family history of primary amenorrhea was positive. Abdomen MRI with contrast and a laparoscopic exploration revealed inguinal testis-like structures and absence of the uterus. Chromosomal analysis of our patient and affected family members displayed a 46,XY karyotype and hormonal profile commensurate with clinical diagnosis. Microscopic examination following bilateral gonadectomy performed at the age of 38 yrs, showed a bilateral hamartoma, consisting of immature seminiferous tubules without lumen, Leydig cells small nodules and immature Sertoli cells without atypia and spermatogonia. The sections of the tumor were positive for α -inhibin and immunonegative for pancytokeratine, EMA, PLAP and ER; less than 1% of tumor cells were positive for the proliferation marker Ki67/MIB-1. The molecular defect of our CAIS patient was a c.923-926 insC mutation with-amino acid replacement p.Lys311Glnfsx338 in the sequence of the AR gene, causing a premature stop codon and then failure to synthesize mRNA and AR protein. The mutation found represents a novel structural defect causing CAIS and the associated benign hamartoma is an intriguing finding in a gonad for a long time retained in the abdomen.

PP025

HISTOPATHOLOGICAL FEATURES OF TESTICULAR TUMOUR IN A HIGH-RISK ENVIRONMENTAL AREA

M. Altomare¹, M. Castaing², A. Torrisci², A. Torrisci², F. Tisano², A. Madeddu², E. Vasquez², S. Sciacca², S. La Vignera¹, A. E. Calogero¹, E. Vicari¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²Integrated Cancer Registry, Department of Hygiene and Public Health "G.F. Ingrassia", University of Catania

Background: Testicular tumour (TT), the most frequent cancer in young men, shows geographical differences in its incidence probably due to environmental factors. The main risk factors is cryptorchidism. Most TT begin in germ cells, and are histologically classified in seminoma (S) and non-seminoma (NS). S is the most frequent form reported in the Italian Cancer Registries (ICR). In some cases of NS, the presence of different histotypes within the same tumour has been reported, but there are few data on the S+NS association. Our preliminary data from a study conducted in men living in the industrial area (IA) of Melilli, Eastern Sicily, indicates a high rate of abnormal sperm parameters. **Objective:** to evaluate the occurrence and the histopathological features of TT in the IA of Melilli-Priolo-Augusta, and in the overall Eastern Sicily. **Materials and methods:** The Integrated Cancer Registry database, sections of Syracuse (SR), Catania (CT), and Messina (ME), was reviewed. The data relate to the period 2003-2005. All incident cases (n=190) over these three years, for each province, were included. We reviewed age at diagnosis and histological classification. **Results:** Eight cases of TT in IA were found and none of them had a positive history for cryptorchidism. Their mean (\pm SEM) age was 30.6 \pm 4.3 years, significantly lower compared to age of patients of CT, ME, and remaining part of SR (pSR). Four out of 8 cases (50%) were S and 2 (25%) cases were NS. Mixed S+NS was found in the remaining 2 (25%) cases. About half of cases of ME and pSR were S, but S were found in 37% of CT cases. Mixed S+NS was found in: 9.8%, 12.3%, and 6.4% (CT, ME, and pSR, respectively). **Conclusions:** According to ICR, S was more frequent in IA, but a higher percentage of concomitant S+NS mixed form was found in this area. Without a positive history of cryptorchidism, these finding suggested a potential role of environment in the development of TT.

PP026

TORC1/TORC2 INHIBITOR, PALOMID 529, ENHANCES RADIATION RESPONSE MODULATING CRM1-MEDIATED SURVIVIN FUNCTION DELAYING DNA DAMAGE REPAIR IN PCA MODELS

G. L. Gravina¹, C. Festuccia², D. Sherris³, E. Carosa⁴, S. Di Sante⁴, E. Ricevuto⁵, A. Lenzi¹, E. A. Jannini⁴

¹Dept. of Experimental Medicine, Section of Medical Pathophysiology, Food Science and Endocrinology, Sapienza University of Rome, ²Dept. of Clinical and Applied Sciences and Biotechnologies, University of L'Aquila, ³Paloma Pharmaceuticals, Inc., Jamaica Plain, ⁴Dept. of Clinical and Applied Sciences and Biotechnologies, University of L'Aquila, ⁵Dept. of Clinical and Applied Sciences and Biotechnologies, Division of Medical Oncology, University of L'Aquila

Purpose: Aim of this study is to elucidate the radiosensitizing mechanisms associated with P529 in prostate cancer models. **Experimental Design:** Human in vitro and in vivo models were used to verify this hypothesis. **Results:** P529 treatment induced significantly more apoptosis and DNA double-strand breaks (DSB) especially when combined with radiotherapy resulting in cellular radiosensitization and growth delay of irradiated tumor xenografts. Upon P529 treatment Rad51 and DNA-PKcs protein expression was downregulated, indicating delayed DNA double-strand damage repair. The radiosensitizing properties of P529 was partially linked to GSK-3 β activity modulation with associated inhibition of CRM1-mediated nuclear export of survivin. These phenomena contributed to the enhancement of radiation-reponse in terms of anti-proliferative/anti-survival effects. **Conclusions:** Taken together, increased DNA DSBs, impaired DNA damage repair, inhibition of CRM1-mediated nuclear export of survivin associated with enhanced of pro-apoptotic events may explain the radiosensitizing properties of P529 in preclinical models of prostate cancer.

PP085

PROTECTIVE EFFECT OF PROBIOTIC LACTOBACILLI AGAINST SPERM DAMAGE EXERTED BY SOLUBLE FACTORS FROM ESCHERICHIA COLI: FOCUS ON LIPOPOLYSACCHARIDEA. Barbonetti¹, M. R. C. Vassallo¹, B. Cinque², A. C. Giornetta¹, S. Francavilla¹, F. Francavilla¹¹Andrology Unit, Department of Internal Medicine, University of L'Aquila, ²Experimental Medicine, University of L'Aquila

Introduction Unidentified soluble products of E.Coli have been reported to inhibit mitochondrial membrane potential (MMP), motility and vitality of human sperms. We investigated whether lipopolysaccharide (LPS) released by Gram-negative bacteria could account for these effects, as LPS receptor, TLR4, has been recently identified in human sperms. Furthermore, as strains of lactobacilli (LB) can produce soluble factors interfering with TLR4 signalling, we also evaluated possible protective effects exerted by a mix of 3 selected strains of vaginal lactobacilli (*L. brevis*, *L. salivarius*, *L. plantarum*). **Methods** Sperm motility was evaluated with CASA, sperm vitality with the eosin exclusion staining and sperm MMP at flow cytometry with JC-1, emitting red or green fluorescence when MMP is high or low, respectively. In order to avoid contacts between sperms and bacteria, coincubations were carried out in a Transwell system, where two compartments are delimited by a 0.4 µm pore membrane. **Results** When compared to untreated samples, sperm suspensions coincubated (1 h) with E.Coli exhibited lower % of viable sperms ($19.6 \pm 3.2\%$ vs $70.4 \pm 11.4\%$, $p=0.007$), motile sperms ($1.2 \pm 1.2\%$ vs $63.6 \pm 10.8\%$, $p=0.0004$) and sperm MMP. All these effects were prevented by the addition of LB mix, while no preventive effects was exerted by UV-inactivated LB. LPS inhibited sperm MMP, as indicated by the decrease in % of sperms with red JC-1 fluorescence ($47.4 \pm 6.2\%$ vs $75.7 \pm 2.9\%$, $p=0.02$), throughout 6 h incubation, without affecting sperm motility and vitality. The LPS-induced MMP inhibition was prevented by LB. **Conclusions** LPS cannot account for adverse early effects exerted by soluble products of E.Coli on sperm motility/viability. Protective effects of LB against the loss of motility/vitality induced by products of E.Coli are not related to interferences with TLR4 signalling and mechanisms remain to be elucidated.

PP086

EVALUATION OF LYMPHOCYTE SUBSETS IN SEMEN OF PATIENTS WITH VARICOCELE: RELEVANCE OF A NEW HEMODYNAMIC CLASSIFICATIONL. Iacoviello¹, R. A. Condorelli¹, A. E. Calogero¹, F. Giacone¹, V. Bullara¹, N. Barone¹, L. Mongioi¹, E. Vicari¹, S. La Vignera¹¹Department of Medical and Pediatric Sciences, University of Catania

The aim of this study was to determine lymphocyte subsets in the semen from patients with varicocele to better evaluate the impact of venous reflux limited to the left spermatic vein (SV) or extended to the pampiniform plexus (PP) or to periprostatic plexus (PPP). To accomplish this, a flow cytometric method was developed to identify and count immunophenotypically distinct lymphocytes present in the seminal fluid. Fresh semen samples were collected from twenty patients with varicocele characterized by bilateral continuous venous reflux. Six patients (group A) (mean age: 28 ± 7 years) had venous reflux limited to left SV, 6 patients (group B) (mean age: 26 ± 5 years) had venous reflux in the left SV and PP, and 5 patients (group C) (mean age: 25 ± 8 years) had a venous reflux in the SV, PP, and PPP. Conventional leukocyte count (peroxidase positive leukocytes) did not show any significant difference among the 3 groups of patients evaluated. The patients of the group C had lower ejaculate volume, sperm count, sperm motility, and morphology. They also showed higher concentrations of CD45pos cells (2.34 ± 0.7 mil/ml vs 2.12 ± 0.9 mil/ml) compared with the other groups. Moreover, these patients showed lower values of CD4/CD8 ratio (0.20 ± 0.25 vs 2.10 ± 0.50 mil/ml) and higher concentrations of CD8pos cells ($11.2 \pm 6.2\%$ vs $6.1 \pm 2.5\%$) compared with groups A or B. In conclusion, these results suggest the presence of a higher number of lymphocytes in the seminal fluid of varicocele patients with a more extended venous reflux.

PP089

FREE CATHETER SCLEROEMBOLIZATION VERSUS OCCLUDING BALLOON SCLEROEMBOLIZATION IN THE TREATMENT OF MALE VARICOCELE

A. Basile¹, E. Mundo¹, R. A. Condorelli², F. Lanzafame³, F. Arcoria², C. Cosentino², A. Managò², A. E. Calogero², S. La Vignera²

¹Department of Diagnostic and Interventional Radiology, Garibaldi Centre Hospital, ²Department of Medical and Pediatric Sciences, University of Catania, ³Territorial Center of Andrology

The aim of this study was to compare the technical success evaluated by the total occlusion of the left spermatic vein achieved with free catheter or with occluding balloon injection of sclerosant. From June 2011 to June 2012, 60 patients were treated with scleroembolization for left spermatic vein varicocele. Thirty patients (group A) underwent scleroembolization by angiographic diagnostic catheter (free catheter technique), whereas the other 30 (group B) were treated by means of an occluding balloon. In case of incomplete occlusion of the left spermatic vein, the procedure was completed with coils insertion. Patients of group A required the insertion of coils in 9 cases (26,6%) to complete the embolization, whereas this was required in 4 patients of the group B (6.6%). In the latter group, the rupture of the left spermatic vein was reported in 6 patients with contrast extravasation (20%). In this case, the procedure was completed only with sclerosant because the occluding balloon, positioned distally to the vessel tear, obviating any retrograde extravasation of sclerosant. These findings suggest that the injection of sclerosant with the insertion of an occluding balloon requires the implantation of a coil in a significantly lower number of patients with left spermatic vein varicocele.

PP090

ASSESSMENT OF THE INFLUENCE OF HIGH DIOXIN EXPOSURE ON SPERM QUALITY; AN OBSERVATIONAL STUDY.

F. Di Filippo¹, P. Prusciano¹, A. Vitti²

¹Laboratorio analisi Dr. Prusciano, sezione di andrologia, ²CREA S.r.l.

The aim of this study is to evaluate the association of the air pollutant emitted from industry of Taranto, on male fertility, by seminal liquid. Patients attending our laboratory (n=316) provided semen samples and, from the case-study, we have excluded men with clinical problems (i.e., varicocele, cancer, vasectomy). Basing on data obtained from ARPA Puglia, that constantly monitors the values of different air pollutant in the air, we have focused on exposure to dioxin and distributed the patients in 3 groups, based by distance from the center of the city (Taranto city, Taranto province and other provinces). Various studies have, in fact, demonstrated a correlation between high levels of dioxin and health diseases both in experimental animals and in humans.

We have analyzed the differences in terms of sperm concentration, morphology, DNA fragmentation and Oxidative Stress. Data from the tests have shown no statistically decrements in sperm outcomes in men with the highest exposure to dioxin (city), in comparison with the other groups, for concentration and morphology ($p > 0.05$). First data coming from NBT treatment and TUNEL assay suggest an increase in percentage of Oxidative stress and DNA fragmentation in samples coming from the city comparing those coming from the other two groups.

At the end of this first screening on male fertility in association with the direct annual exposure to levels of dioxins (DIOX (TCDDe) \approx 120 g/year), we can hypothesize that a simple test on the seminal liquid it is not enough to estimate the real consequences on man reproductive system. In consideration of that, we will proceed with the experiments on health of human spermatozoa with the purpose to confirm the data obtained so far.

PP145

SEMINAL VESICLES AND DIABETIC NEUROPATHY: ULTRASOUND EVALUATION AFTER PROLONGED TREATMENT WITH A SELECTIVE PHOSPHODIESTERASE-5 INHIBITOR

S. La Vignera¹, E. Vicari¹, R. A. Condorelli¹, F. Lotti², V. Favilla³, G. Morgia³, M. Di Mauro¹, M. Maggi², A. E. Calogero¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²Sexual Medicine and Andrology Unit, University of Florence, Florence, ³Dipartimento of Urology, University of Catania

The present study investigated possible ultrasound SV changes in infertile patients with DM and diabetic neuropathy (DN), after prolonged administration of tadalafil (TAD) (a specific phosphodiesterase-5 inhibitor). To accomplish this, 20 infertile patients with symptomatic DN and erectile dysfunction were selected and arbitrarily divided into two groups which were assigned to: daily administration of TAD (5 mg) for 3 months (group A) (n=10) and the administration of placebo (group B) (n=10). All patients underwent to didimo-epididymal and prostate-vesicular transrectal ultrasound evaluation and sperm analysis (WHO criteria, 2010) before and after treatment. The following SV US parameters were recorded: 1) body APD; 2) fundus APD; 3) parietal thickness of the right and left SVs; and 4) number of polycyclic areas within both SVs. We then calculated the following parameters: 1) fundus/body (F/B) ratio; 2) difference of the parietal thickness between the right and the left SV; and 3) pre- and post-ejaculatory APD difference. In addition, we also evaluated the SV ejection fraction. Group A patients showed a significant reduction of F/B ratio and higher pre and post ejaculatory body SV APD difference compared with baseline or group B after three months. These patients showed also a significant increase in SV ejection fraction and a significant improvement of the total sperm count, progressive motility, seminal levels of fructose, leukocytes, and ejaculate volume. In conclusion, these results suggested that infertile DM patients with DN and erectile dysfunction had an improvement of ultrasound features suggestive of diabetic neuropathy after daily treatment with low doses of TAD.

PP146

PERSISTENCE OF ULTRASOUND ALTERATIONS AFTER ANTIBIOTIC TREATMENT WITH LEVOFLOXACIN IN PATIENTS WITH MALE ACCESSORY GLAND INFECTION

S. La Vignera¹, E. Vicari¹, R. A. Condorelli¹, S. Bellanca², M. Salmeri², C. Campagna¹, A. Naselli¹, N. Burrello¹, A. E. Calogero¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²University of Catania

No studies have evaluated the ultrasound features of the male sex accessory glands in infertile patients with bacterial male accessory gland infection (MAGI) according to the microbiological outcomes of bacterial cultures following antibiotic therapy administration. Therefore, the aim of this study was to evaluate the ultrasound characteristics of the prostate, seminal vesicles, and epididymal tracts after treatment with levofloxacin (a common quinolone antibiotic), in patients with infections caused by *Escherichia coli* (a gram-negative bacterium) according to the Naber's classification, which includes the following categories: eradication, eradication with superinfection, persistence, and persistence with superinfection. The study was conducted in 100 patients aged 25±8 years old (range 20-40 years old) with bacterial MAGI and bacterial cultures positive only for *E. coli* (>1000000 colony forming units/ml). Retrospective analysis was conducted only on patients treated with oral levofloxacin (500 mg) administered once daily for 28 days who were recruited over the last 5 years. All patients had undergone didimo-epididymal and prostate-vesicular ultrasound scans which allowed to diagnose the presence of prostatitis, prostate-vesiculitis (PC), or prostate-vesiculo-epididymitis (PVE). Following antibiotic treatment, patients with microbiological persistence or persistence with superinfection had a significantly higher percentage of ultrasound abnormalities suggestive of PV (30.2% and 36.0%, respectively) or PVE (60.2% and 70%, respectively) compared with patients with microbiological eradication (PV=10.2% and PVE=8.2%, respectively) or eradication with superinfection (PV=18.8% and PVE=21.2%), respectively. In conclusion, patients with microbiological persistence or persistence plus superinfection showed the highest prevalence of complicated forms of MAGI (PV and PVE), compared with patients with microbiological eradication or eradication with superinfection.

PP147

POST-TESTICULAR CYSTIC DISEASE IN PATIENTS WITH AUTOSOMAL DOMINANT POLYCYSTIC KIDNEY DISEASE (ADPKD): ULTRASOUND AND SEMINAL ASPECTS

F. Garrone¹, A. E. Calogero¹, P. Fatuzzo², C. Campagna¹, F. Cocchiara¹, B. Aiello¹, Y. Duca¹, S. La Vignera¹, E. Vicari¹

¹Dept of Medical and Pediatric Sciences, Univ. of Catania, ²Dept of Internal Medicine, Univ. of Catania

The aim of this study was to evaluate the prevalence of testicular, prostate and seminal vesicle cysts and the sperm parameters of patients with autosomal dominant polycystic kidney disease (ADPKD). 20 male patients (mean age 40.5 years, range 21-63 years) diagnosed with ADPKD agreed to participate to the study. All of them underwent didimo-epididymal and prostate-vesicular transrectal ultrasound scan and sperm analysis according the WHO2012 criteria. At the epididymal level, cysts were found in 16 patients: of these 2 had only one cyst (unilateral), 3 had more than a cyst in one epididymis, the remaining 11 had cysts on both epididymis. Sperm parameters evaluated in 18 patients showed that 3 patients had severe oligoastoteratozoospermia (OAT), 4 severe oligoastenozoospermia (OA), 1 severe astenoteratozoospermia (AT), 1 moderate oligoastenozoospermia (OA), 6 patients only slight asthenozoospermia (A), and finally 3 patients presented anejaculation. The ultrasound evaluation of prostate and seminal vesicles (performed on 18 patients) showed the presence of a median cyst (Mullerian) in 1 patient. Cysts of the seminal vesicles were, on the other hand, found in 10 patients: in 9 of these patients, the cysts were in both seminal vesicles and in 1 patient the cysts were in a single vesicle. The results of this study showed that cysts of the epididymal caputare were present in a high percentage (80%) of patients with ADPKD, about 50% of them had cysts in both seminal vesicles. With regard to the sperm parameters, taking also into account the patients suffering from anejaculation, severe changes in the conventional sperm parameters were found in 61.1% of the patients with ADPKD. Patients with cysts only in the epididymis have severe abnormalities of the semen in half of cases (2 out of 4 patients) and slight asthenozoospermia in the other half. All but one patient (8 of 9) with cysts in both seminal vesicles had severe sperm parameter abnormalities. These findings suggest that ADPKD may be regarded as a novel male infertility cause.

PP148

HYPERVISCOSITY OF SEMEN IN PATIENTS WITH MALE ACCESSORY GLAND INFECTION: DIRECT MEASUREMENT WITH QUANTITATIVE VISCOSIMETER

F. Giacone¹, R. A. Condorelli¹, L. Cimino¹, F. Garrone¹, G. Burgio¹, D. Recupero¹, A. E. Calogero¹, E. Vicari¹, S. La Vignera¹

¹Department of Medical and Pediatric Sciences, University of Catania

Aim of this study, was to evaluate whether the viscosity of semen in patients with male accessory gland infection is related to the extension of the inflammatory process to the various male accessory glands. To accomplish this, seminal fluid viscosity was assessed by quantitative viscosimeter and the results were expressed in centipoise (cps). The study was conducted on 30 infertile patients with clinical evidence of male accessory gland infection and a mean age of 29.0±4.0 years. Patients were subjected to evaluation of the semen viscosity through quantitative viscometer. All patients showed an increase of viscosity evaluated according to WHO criteria, while this parameter was normal in all normozoospermic healthy men. The semen viscosity of patients with male accessory gland infection (28.6±2.2cps) was significantly (p<0.05) higher than in controls (10.7±0.6cps). A significantly increased values were also observed in patients with involvement of multiple gland inflammation (prostatitis alone < prostatico-vesiculitis < prostatico-vesiculo-epididymitis). The viscometry evaluation of seminal fluid viscosity allowed the identification of a quantitative value which was higher in the more extended forms. Therefore, this score represents a valuable diagnostic tool in the clinical practice. We speculate that it may be an useful tool to better monitor the treatment response of patients with male accessory gland infections.

PP149

HEAVY METAL LEVELS AND SPERM PARAMETERS IN MEN LIVING IN AN ENVIRONMENTAL RISK AREA COMPARED WITH INHABITANTS OF A NON-INDUSTRIAL AREA

M. Altomare¹, L. O. Vicari¹, F. Giacone¹, R. A. Condorelli¹, F. Garrone¹, M. Castaing², M. Fiore², M. Ferrante², S. Sciacca², R. D'Agata¹, S. La Vignera¹, A. E. Calogero¹, E. Vicari¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²Department of Hygiene and Public Health "G.F. Ingrassia", University of Catania

Background: Impaired fertility and elevated levels of heavy metals in blood and seminal plasma have been reported in industrial workers, but less clear is the role of environmental metal exposure. Objectives: To evaluate sperm parameters and the most ubiquitous metal levels in blood and seminal plasma of men living in an industrial area (IA) compared with those of a non-industrial area (NIA). Subjects and methods: 96 men with median age of 33 years, living in Melilli (IA in Eastern Sicily, Italy), and 83 men with median age of 30 years, living in Regalbuto (NIA in Central Sicily, Italy) were recruited. Fifty-one (53%) IA men were also industrial workers. Blood and seminal plasma Pb, Hg, Cd, Ni, As, V, Se concentrations were measured by a Perkin-Elmer Elan DRC, ICP-MS. The following reference values were used ($\mu\text{g/L}$): Pb ≤ 400 , Cd ≤ 5 , Hg ≤ 5 , As ≤ 12 , Ni ≤ 4 . Conventional sperm parameters were evaluated according to the WHO 2010 guidelines. Non-conventional parameters were assessed by flow-cytometry. Results: Comparing IA vs. NIA: cigarette smokers were 37% (vs. 53.2%, $p=0.04$); asthenozoospermia was found in 58% (vs. 37%, $p=0.005$), oligozoospermia in 20% (vs. 10%, $p=0.06$); high degree of sperm chromatin compactness (CC) in 43% (vs. 23%, $p=0.005$). In a multivariate analysis, CC was significantly higher ($p=0.002$) in IA vs. NIA. Elevated levels of As, Ni, Se in blood, and Cd, As, Ni, Se in seminal plasma were found in a significantly higher percentage in IA vs. NIA. In a multivariate analysis, As, Ni, Se (blood), and Se (seminal plasma) were significantly higher in IA vs. NIA ($p<0.001$). Conclusions: Environmental exposure to heavy metals resulted in higher their levels in blood and in seminal plasma and impaired sperm parameters, mostly in men living in an IA. Ackn: this study is supported in part by Frisone Foundation.

PP150

IN-VITRO EFFECTS OF AIR EXTRACTS FROM AN INDUSTRIAL AREA OF EASTERN SICILY ON SPERM PROGRESSIVE MOTILITY

M. Altomare¹, P. Asero¹, L. O. Vicari¹, R. A. Condorelli¹, F. Giacone¹, L. Iacoviello¹, L. Tamburino¹, M. Fiore², M. Ferrante², A. E. Calogero¹, E. Vicari¹, R. D'Agata¹

¹Department of Medical and Pediatric Sciences, University of Catania, ²Department of Hygiene and Public Health "G.F. Ingrassia", University of Catania

Background: Several in-vivo and in-vitro studies suggested that male fertility may be impaired by environmental exposure to pollutants. Our preliminary data in men living in the industrial area (IA) of Melilli, Eastern Sicily, and in men living in the non-industrial area (NIA) of Regalbuto, Central Sicily, showed a higher rate of altered sperm parameters, mostly progressive motility (PM), along with higher levels of heavy metals and PCBs in blood and seminal plasma in IA compared with NIA. Objective: To evaluate the effects of exposure to contaminants present in the air extract from IA (AE-IA) and of NIA (AE-NIA) on PM. Materials and methods: Polycyclic aromatic hydrocarbons (PAH) and heavy metals (As, Cd, Ni, V, Pb, Hg) were measured on AE by HPLC and AAS, and values compared with limit values (DL 155/2010). Four experiments were performed incubating spermatozoa obtained by swim-up from normozoospermic non-smoker men with AE of both IA and NIA, saline (CTL), and filter extract (FE). PM was evaluated according to the WHO 2010 criteria after 0, 3, 6, and 24 h of incubation. Results: PAH were within normal limits in AE-IA and below the assay-limit in AE-NIA. As and Ni levels were the only heavy metals above normal limit in AE-IA. Hg concentrations were higher in AE-NIA vs. AE-IA. A more profound time-dependent decrease (6 h > 3 h) of PM was observed in AE-IA vs. AE-NIA: 21.5% vs. 43% (3 h), 7% vs. 32% (6 h). The effect of EA was more evident than FE or CTL. PM was near to zero at 24 h in all cases. Conclusions: These results confirmed the effect of environmental toxicant on sperm motility also with an in-vitro experimental model. This effect is more pronounced by exposure to the air derived from an IA.