

RESULTS: PAWP recombinant protein/cRNA triggered calcium oscillations in human and mouse oocytes similar to those triggered by sperm factors released during ICSI. Furthermore, sperm-induced calcium oscillations were blocked by co-injection of the competitive peptide derived from the WWI domain-binding motif of PAWP, implying the requirement of sperm PAWP for successful fertilization. Strong positive correlations were found between sperm PAWP levels and fertilization rates as well as normal preimplantation embryonic development in couples undergoing ICSI.

CONCLUSION: Our functional and developmental data strongly suggest that sperm-delivered PAWP is a unique protein which has a non-redundant role during human and mouse fertilization, is required to trigger zygotic development and has potential applications in the diagnosis and treatment of infertility.

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OUTCOMES OF MICRODISSECTION TESTICULAR SPERM EXTRACTION IN MEN WITH EARLY VERSUS LATE MATURATION ARREST. A. M. Bernie,^a C. Bryson,^a R. Ramasamy,^b B. Robinson,^c P. N. Schlegel.^a ^aUrology, New York Presbyterian/Weill Cornell, New York, NY; ^bUrology, Baylor College of Medicine, Houston, TX; ^cPathology, New York Presbyterian/Weill Cornell, New York, NY.

OBJECTIVE: Maturation arrest (MA) histology on testis biopsy has been associated with worse prognosis for sperm retrieval in men with nonobstructive azoospermia (NOA). Men with early MA have worse outcomes compared to men with late MA. The objective of this study was to evaluate sperm retrieval outcomes for men with NOA and MA who underwent microdissection testicular sperm extraction (micro-TESE).

DESIGN: Retrospective study.

MATERIALS AND METHODS: A retrospective review of charts for 1068 consecutive patients with NOA, confirmed by analysis of 2 centrifuged semen samples, who underwent micro-TESE at a single center after a sample obtained on the day of planned micro-TESE confirmed absolute azoospermia, was performed. Men with complete AZFa or AZFb microdeletions were excluded. Clinical factors including age, FSH, testis volume, varicocele, history of cryptorchidism or Klinefelter syndrome and sperm retrieval rate (SRR) were analyzed. Patients were considered to be MA on their pathology if the most advanced pattern was consistent with MA, which included both patients with mixed pathology and with 100% MA. Slides were re-reviewed by a urologist who was blinded to outcome of the micro-TESE to determine early versus late MA, with early including germ cell and primary spermatocyte arrest and late including arrest at the spermatid level. Differences in SRR were compared using a chi-square analysis.

RESULTS: 175 patients with mean age 35.6 ± 6.4 years were analyzed. Mean testis volume was 11.0 ± 5.4 cc. Mean FSH was 19.5 ± 14.6 IU/L. Overall SRR was 44.8%. SRR was similar in the early MA group compared to the late MA group (47.8% vs 33.3%, $p=0.7$). SRR trended towards significance among patients with testis volume <10 cc compared to ≥ 10 cc (62.7% vs 47.8%, $p=0.07$). Patients with FSH ≥ 10 IU/L had a higher SRR compared to patients with an FSH <10 IU/L (62.5% vs 38.2%, $p=.003$).

CONCLUSION: MA on diagnostic biopsy in men with NOA is associated with a sperm retrieval rate of 45% using micro-TESE at our center. Despite previous findings, the SRR was similar amongst men with either early or late MA. Men with larger volume testis and low FSH had the worse SRR of any men with MA. These observations are paradoxical to the typical assumptions that larger testis volume and lower FSH are associated with better testicular function.

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MALE CAFFEINE AND ALCOHOL INTAKE IN RELATION TO IN VITRO FERTILIZATION OUTCOME AMONG FERTILITY PATIENTS. A. E. Karmon,^a T. L. Toth,^a A. J. Gaskins,^b M. C. Afeiche,^b C. Tanrikut,^c R. Hauser,^d J. C. Chavarro.^b ^aVincent Obstetrics and Gynecology, Massachusetts General Hospital, Boston, MA; ^bDepartment of Nutrition, Harvard School of Public Health, Boston, MA; ^cDepartment of Urology, Massachusetts General Hospital, Boston, MA; ^dDepartment of Environmental Health, Harvard School of Public Health, Boston, MA.

OBJECTIVE: To examine the relationship of male caffeine and alcohol intakes with their partner's clinical pregnancy rates following in vitro fertilization (IVF).

DESIGN: Prospective cohort study.

MATERIALS AND METHODS: The Environment and Reproductive Health Study is an on-going prospective cohort study enrolling subfertile couples presenting at Massachusetts General Hospital (2007-2013). Information on pre-treatment dietary intake was collected from 105 men who underwent 214 IVF cycles. Logistic regression models using generalized estimating equations (GEE) were fit to investigate the relationship between male beverage intake and clinical pregnancy after IVF. Results were adjusted for male and female age and BMI, male smoking status, male total calorie and macronutrient intake, infertility diagnosis, and female caffeine and alcohol intakes.

RESULTS: Mean male age was 37 years and median male caffeine and alcohol intakes were 169 mg/day and 13g/day, respectively. Clinical pregnancy rate per initiated cycle was 55%. In multivariate regression, male caffeine intake was negatively associated with clinical pregnancy per initiated cycle (p -trend=0.04), while male alcohol intake was positively associated with clinical pregnancy per initiated cycle (p -trend<0.01). Compared to men consuming <88 mg/day of caffeine, adjusted odds ratios (95% CI) for clinical pregnancy per initiated cycle were 1.4(0.5-3.8), 1.7(0.6-4.8), and 0.4(0.1-1.0) for men consuming 88-168mg/day, 169-264mg/day, and ≥ 265 mg/day of caffeine, respectively. Compared to men who consumed <3 g/day of alcohol, adjusted odds ratios (95%CI) for clinical pregnancy per initiated cycle were 1.1(0.4-3.1), 3.1(1.1-8.7), and 4.5(1.5-13.6) for men consuming 3-12g/day, 13-21g/day, and ≥ 22 g/day of alcohol, respectively.

CONCLUSION: Although there is extensive literature on the relationship between beverage intake and semen parameters, little data exist on male caffeine and alcohol intake and pregnancy outcomes. Our results suggest that male caffeine and alcohol intake impact in vitro fertilization outcome.

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O-20 Monday, October 20, 2014 05:15 PM

FRUIT AND VEGETABLE INTAKE AND THEIR PESTICIDE RESIDUES IN RELATION TO SEMEN QUALITY AND FERTILIZATION RATES AMONG SUBFERTILE MEN. Y.-H. Chiu,^a M. C. Afeiche,^a A. J. Gaskins,^a P. L. Williams,^a D. L. Wright,^b J. C. Petrozza,^{b,c} C. Tanrikut,^c R. Hauser,^a J. E. Chavarro.^a ^aHarvard School of Public Health, Boston, MA; ^bVincent Department of Obstetrics and Gynecology, Massachusetts General Hospital, Boston, MA; ^cDepartment of Urology, Massachusetts General Hospital, Boston, MA.

OBJECTIVE: To examine the relation of fruit and vegetable (FV) intake, taking into consideration their pesticide residue status, with semen quality and fertilization rates.

DESIGN: Prospective cohort study at an academic hospital.

MATERIALS AND METHODS: Between April 2007 and June 2012, 155 men presenting to a fertility center completed a food frequency questionnaire and produced a total of 338 semen samples. Of these men, 105 and their female partners underwent a total of 190 *in vitro* fertilization (IVF) cycles. FVs were dichotomized as high or low pesticide residue based on the USDA annual reports. The intakes of high and low residue FVs were then summed and quartiles were created. Generalized linear mixed models were used to analyze the association of high and low residue FV intake with sperm parameters adjusted for male age, BMI, physical activity, total energy intake, abstinence time, race, dietary pattern scores, smoking status, and history of varicocele. Models for fertilization rates were additionally adjusted for female age, BMI and intake of FVs.

RESULTS: Intake of total FVs and low pesticide residue FVs were unrelated to semen quality. However, men in the top quartile of high pesticide residue FV intake had 64% (95% CI: 41%, 78%) lower total morphologically normal sperm count and 70% (95% CI: 43%, 85%) lower total motile sperm count than men in the lowest quartile of intake (p , trend= 0.01 and 0.01, respectively). Total FV intake was positively related to fertilization rates among couples undergoing IVF with conventional insemination (p , trend=0.03), but not Intra-cytoplasmic sperm injection (p , trend=0.71). This association was mainly driven by intake of low pesticide residue FVs. Specifically, the adjusted IVF fertilization rates by increasing quartile of low pesticide residue FV intake were 0.60 (0.34, 0.81), 0.60 (0.40, 0.77), 0.75 (0.56, 0.87), and 0.88 (0.72, 0.95) (p , trend=0.04).