

after assisted conception. Causes of infertility included a range of male and female factors. The studies were performed in the fertility clinic setting. Pulsatility index measurements were taken using transvaginal ultrasound at various points prior to embryo transfer.

Main results and the role of chance: The search produced a total of 758 studies which were all retrieved. A total of 29 cohort studies were included in the review. A raised mean PI (>3) was present in 1 study within the group of pregnant women and present in three studies within the group of non-pregnant women. Overall the pregnant group had a significantly lower uterine pulsatility index when compared with the non-pregnant group [WMD -0.14; 95% confidence interval (CI): -0.22,-0.06; $p = 0.000$; 29 studies]. Pulsatility index measurements taken within a day of embryo transfer most reliably correlated with the primary outcome after assisted conception [WMD -0.18, 95% CI 0.26, -0.10); $p = 0.065$; 10 studies], however this could be due to chance. There was a high degree of heterogeneity ($I^2 = 44\%$).

Limitations, reasons for caution: There was significant heterogeneity between studies, with variation in population characteristics and the treatment protocols given to participants. Using the Newcastle-Ottawa scale for assessing quality, the included studies were considered "satisfactory".

Wider implications of the findings: This review suggests that women with a lower uterine pulsatility index are more likely to achieve pregnancy, after assisted conception. Further research is required to determine whether there is a cut-off pulsatility index above which pregnancy is not possible and to determine the most reliable test of endometrial vascularity.

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P-393 Comparison of Cap-Score™, TUNEL, and semen analysis in couples undergoing timed intercourse and IUI

P. Xie¹, A. Parrella¹, A. Travis², D. Keating¹, Z. Rosenwaks¹, G. Palermo¹

¹Weill Cornell Medicine, The Ronald O. Perleman and Claudia Cohen Center for Reproductive Medicine, New York, U.S.A.

²Cornell University, College of Veterinary Medicine, Ithaca, U.S.A.

Study question: What relationships exist among Cap-Score™ (test of sperm capacitation), TUNEL (test of DNA fragmentation) and traditional semen analysis parameters?

Summary answer: Cap-Score™ didn't correlate with semen analysis or TUNEL. However, TUNEL had a strong negative correlation with motility, making determination of cause of fertilization failure difficult.

What is known already: High sperm DNA fragmentation and diminished capacitation response may impair conception with timed intercourse or intra-uterine insemination (IUI). Terminal deoxynucleotidyl transferase dUTP Nick End Labeling (TUNEL) is widely used to assess breaks within sperm DNA. Cap-Score™ measures the proportion of sperm that respond to capacitation stimuli by assessing localization changes in GM1, a key regulator of capacitation and acrosome exocytosis. One prior study showed no relationship between Cap-Score™ and semen analysis, whereas multiple conflicting reports exist on the relationship of TUNEL and semen analysis. No one has previously assessed the potential correlation of Cap-Score™ and TUNEL.

Study design, size, duration: In the past 3 months, ejaculates were obtained from 41 consenting men for infertility screening. Preliminary pregnancy outcomes were also collected. Statistical relationships among semen analysis, TUNEL and Cap-Score™ were assessed. Potential linear associations between Cap-Score™ or TUNEL and traditional semen parameters were assessed by Pearson's Product-Moment Correlation. Any potential relationship between TUNEL and Cap-Score™ was evaluated similarly, and "normal vs abnormal" Cap-Score™ and TUNEL were examined by Chi-Square.

Participants/materials, setting, methods: To control for female confounding factors, inclusion criteria consisted of couples with female partners ≤ 35 years old with normal uterine cavity and patent fallopian tubes. Semen samples were processed by density gradient centrifugation according to WHO 2010 criteria. Post-wash specimens were sent to Androvia LifeSciences for Cap-Score™ assessment. Cap-Scores™ ≥27.6% were considered "normal". DNA

strand breaks were assessed by TUNEL on at least 500 spermatozoa under fluorescent microscopy. TUNEL scores ≤15% were considered "normal".

Main results and the role of chance: Cap-Score™ was independent of ejaculate volume ($r = 0.075$; $p = 0.571$), concentration ($r = -0.032$; $p = 0.810$), percentage of motile sperm ($r = 0.005$; $p = 0.967$) and percentage of sperm having strict normal morphology ($r = 0.010$; $p = 0.942$). No relationship was observed between Cap-Score™ and TUNEL, either linearly ($r = -0.091$; $p = 0.571$), or when grouped into normal or abnormal bins and evaluated by Chi-Square ($p = 0.524$). Conversely, a very strong negative relationship was observed between TUNEL and the percentage of motile sperm ($r = -0.930$; $p < 0.001$), meaning that as DNA fragmentation increased, motility decreased. Of the 41 men, TUNEL was abnormal in 11 (26.8%) and Cap-Score was abnormal in 19 (46.3%). In the 11 patients with abnormal TUNEL (mean = 24.1), no natural conceptions were yet reported, nor in the 2 cycles of IUI for which outcomes are known. Of the 30 having normal TUNEL, there were 3 natural conceptions and 5 conceptions out of 9 cycles of IUI for which outcomes are known. In the 22 men having normal Cap-Scores™, 3 natural conceptions occurred, whereas none occurred in the 19 men with low Cap-Scores™. In couples pursuing IUI with normal Cap-Scores™, there were 3 pregnancies out of 6 cycles for which outcomes are known; 2 of 5 cycles with a low result achieved pregnancy with IUI.

Limitations, reasons for caution: These data clearly indicate that the ability of the sperm to capacitate does not correlate with sperm DNA strand breaks. Clinical outcomes represent preliminary data from a limited number of couples. More clinical outcomes data are needed to determine the efficacy of either test at predicting conception by different means.

Wider implications of the findings: This is the first report showing that Cap-Score™ and DNA fragmentation are not related. As assessed by TUNEL, high DNA fragmentation correlated with decreasing motility. To better test and inform infertile couples, the addition of proven biomarkers to the standard semen analysis would help to identify those who can conceive.

Trial registration number: N/A.

P-394 A novel maternal age and blastocyst cohort size-based prediction model estimating the probability of obtaining at least one euploid blastocyst for transfer in IVF/ICSI cycles

S. Esteves¹, J.F. Carvalho², C. Martinhago³, A.M. Dias³, P. Humaidan⁴, C. Alvggi⁵, A. Conforti⁵, F. Ubaldi⁶, R. Fischer⁷, K. Bühler⁸, C.Y. Andersen⁹

¹Androfert - Center for Male Reproduction, Male Infertility, Campinas, Brazil

²Statistika Consulting, Statistics, Campinas, Brazil

³Chromosome, Center for Genomic Medicine, São Paulo, Brazil

⁴Faculty of Health- Aarhus University, Fertility Clinic Skive- Skive Regional Hospital, Skive, Denmark

⁵University of Naples Federico II, Department of Neuroscience- Reproductive Science and Odontostomatology, Naples, Italy

⁶GENERA, Center for Reproductive Medicine, Rome, Italy

⁷Fertility Center, Hamburg, Hamburg, Germany

⁸Center for Gynecology- Endocrinology, and Reproductive Medicine, Stuttgart, Germany

⁹University Hospital of Copenhagen- Faculty of Health and Medical Sciences, Laboratory of Reproductive Biology, Copenhagen, Denmark

Study question: Can a statistical prediction model estimate the probability of achieving at least one euploid blastocyst as a function of female age and embryo cohort size?

Summary answer: Our novel predictive model estimates the minimum blastocyst cohort size needed to achieve at least one euploid blastocyst for transfer given a specified probability.

What is known already: Array comparative genomic hybridization data indicate a negative correlation between female age and embryo euploidy. Aneuploidy rates do not differ significantly by cohort size in women of same age, and the proportion of women with at least one euploid blastocyst is increased when more embryos are available. An individualized estimate of the couple's probability of having a euploid blastocyst and the number of blastocysts needed to achieve this goal before treatment can be used for counseling and treatment planning. Also, estimation of this