USE OF SEMEN QUALITY SCORES IN ADVISING PATIENTS WITH MALE FACTOR INFERTILITY CONSIDERING INTRAUTERINE INSEMINATION

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Objective:
Individual semen parameters are not effective in predicting pregnancy outcome in patients with male factor infertility undergoing intrauterine insemination (IUI). Using principal component analysis, semen characteristics can be reduced into 2 scores: Semen Quality (SQ) and Relative Quality (RQ). SQ is a scale that utilizes concentration, motility, WHO and Kruger morphology, curvilinear velocity, straight-line velocity, linearity and amplitude of lateral head displacements into a single score of overall semen quality and quantity. SQ gives greatest weight to sperm concentration. RQ represents the quality of motility, morphology and motion parameters after adjusting for concentration. Our objective was to determine if these 2 scores can be combined effectively to produce an IUI Semen Pregnancy Score (IUI SPS) using pre-wash measures as a quick and reliable method for directing patients with male factor to either IUI (if high) or IVF (if low).

Design:
Case-control cohort study

Materials/Methods:
We reduced 8 semen characteristics into 2 semen scores. Both scores were scaled to a mean of 100, SD of 10. We applied these semen scores to male factor patients undergoing IUI. Pre-wash semen analyses from 196 IUI cycles of 93 male factor patients [varicocele (n=21), unexplained (n=31), spinal cord injuries (n=6), ejaculatory disorders (n=8), leukocytospermia (n=8), vasectomy reversal (n=6) and others (n=13)] were evaluated. SQ and RQ were calculated. Repeated measures GEE logistic regression was used to evaluate their relationship with pregnancy, and create an equation for use in advising patients.

Results:
Logistic regression indicated that IUI pregnancies could be predicted by this combination of pre-wash SQ and RQ: IUI semen pregnancy score (or IUI SPS) = RQ + (1/2) X SQ. Of the 196 cycles, over half (56%) had an IUI SPS of less than 150. Patients with an IUI SPS greater than 150 had a pregnancy rate of 28% (24 pregnancies out of 87 cycles) compared to 3% (3 pregnancies out of 109 cycles) in patients with IUI SPS <150 (p<0.001). Patients with IUI SPS less than 137, had no pregnancies (0 out of 48 cycles).

Conclusions:
The IUI SPS score based on pre-wash semen parameters in patients with male factor infertility could be used to counsel them about their chances of success with intrauterine insemination treatment. Up to half of the failed IUI attempts in patients with male factor infertility could be avoided based on their IUI SPS. Patients with IUI SPS below 150 may be advised to seek IVF, whereas IUI be recommended in those above this cutoff value.

Supported by:
Cleveland Clinic Foundation