Chiou Fen. C.T. et al., 2013. Proceedings of Singapore Healthcare, Volume 22. Number 2 2013

Relationship between Sperm Hyaluronan-binding Assay (HBA) Scores on Embryo Development, Fertilisation, and Pregnancy Rate in Patients Undergoing Intra-cytoplasmic Sperm Injection (ICSI)

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ABSTRACT

Introduction: The novel development of the sperm hyaluronan-binding assay (HBA) has now been routinely used in some laboratories worldwide to predict sperm maturity and functionality. Hence, the purpose of thisstudy is to evaluate if embryo development, quality, fertilisation and pregnancy rates are affected by low HBA values.

Methods: A total of192 female patients who underwent intra-cytoplasmic sperm injection (ICSI) were compared retrospectively in terms of embryo development, fertilisation, and pregnancy rates with their husbands' HBA score. Patients' husbands were required to undergo a HBA test before the start of their stimulation cycle to determine if their semen was suitable to undergo ICSI or in-vitro fertilisation (IVF). *P*-value < 0.05 was considered significant.

Results: Patients were divided into four groups, group A (HBA ≤ 15%), group B (HBA > 15% < 35%), group C (HBA ≥ 35% < 60%), and group D (HBA ≥ 60%). The fertilisation rate for groups A, B, C, and D were 67.9%, 73.1%, 72.5%, and 77.1% respectively. Group D had a fertilisation rate significantly higher than the rest of the groups (p = 0.016). The pregnancy rate for group D was also significantly higher amongst the four groups (p = 0.041), whereas the pregnancy rate for groups B and C was similar (42.4% versus 41.1% respectively). Day three cleavage rate (the ability to reach six cells and beyond) was highest for group D compared to the other groups (p = 0.002).

Conclusion: The higher the HBA score, the better the fertilisation, pregnancy, and cleavage rates. This Shows that HBA does have the ability to select mature sperms with normal chromosome development and oocyte-binding capability.