

Evaluation of *in vitro* fertilization outcomes using interleukin-8 in culture medium of human preimplantation embryos

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Currently, the morphological method is mainly used for selecting embryos which are to be transferred, but this method is relatively poor for prediction of successful implantation. In recent years, non-invasive observation of embryo development has been considered as a better method of embryo viability assessment. The assessment of embryo quality and prediction of *in vitro* fertilization (IVF) outcome with cytokines in the culture media (EM) of human pre-implantation embryos (HPE) has been explored for years. Researchers have detected tumor necrosis factor alpha (TNF alpha) and leukemia inhibitory factor (LIF) in EM of HPE, and have raised the possibility that LIF could have a function as a factor required for embryo implantation and that high TNF alpha concentrations seem to be predictive of implantation failure. However, we could not find the elevation of TNF α in the EM of human embryos (D3). In this study, the potential of interleukin 8 (IL-8) in the EM of HPE have been determined, and the relationship of the IL-8 with embryo quality and the outcome of clinical pregnancy has been investigated. The EM from HPE (D3) of IVF/ICSI patients was collected and luminex high-throughput protein analysis was used to determine the contents of cytokines in the samples. The results showed

that in patients with media from transferred embryos being tested positive for IL-8 (IL-8 positive group), the pregnancy rate, implantation rate and number of live births per *in vitro* fertilization (IVF) or intra-cytoplasmic sperm injection patient (N LBPP) were higher than that in patients with media being tested negative for IL-8 (IL-8 negative group), and the positive predict value of the IL-8 for predicting the chance of pregnancy was 56.86%. Compared with the IL-8 negative group, a higher pregnancy rate was observed in the IL-8 positive group when the patients received equal quality embryos. Thus, in the EM from HPE, IL-8 may be an independent predictor for pre-transfer assessment of the embryo development potential in IVF patients.

Speaker Biography

Guanyou Huang has his expertise in reproductive immunology and embryo development potential improving the progress of assisted reproductive technique. He raises the hypothesis for prediction of embryo developmental potential and pregnancy based on immune characteristics. He intends to establish a system to assess embryo quality, namely, establish a new and effective system to assess embryo quality on the basis of secretory and immune function of corresponding embryo.

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