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Poster Presentations

P-54
Cytokines as biomarkers for embryo selection

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Background: Studies have shown that the morphological assessments to select the best embryo for transfer could not provide satisfactory outcomes. Therefore, many studies have been conducted to find predictive biomarkers that can distinguish embryos with high implantation potential.

Objective: In the current study, we comprehensively reviewed the possibility of using embryo-secreted cytokines as potential biomarkers for embryo selection in assisted reproductive technology.

Materials and Methods: The present review involved published research articles that have investigated cytokines in the embryo secretome. A search in Google Scholar and PubMed was performed with no limitation on the date of publication using a combination of the following search terms: "secretome", "culture media", and "cytokine (s)".

Results: It can be postulated that the embryo secretome can well reflect the embryo condition. Since the immune system has an indubitable role in implantation and also the immunological factors are involved in the embryo-endometrial crosstalk, the embryo-secreted cytokines can be used as potential biomarkers.

Conclusion: In conclusion, the following three points should take into consideration while using embryo-secreted factors as biomarkers: 1) The culture media should be evaluated at a certain stage of embryo development (e.g. cleavage and blastocyst), 2) The measurement method should be able to detect very small levels of factors, and 3) Changing in the concentration of several embryo-secreted factors in combination should be evaluated to propose an appropriate embryo selection method**.**

Key words: *Embryo, Cytokines, Implantation, Secretome, Culture media.*

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