Abstract

The aim of this dissertation thesis is to emphasize the sense of extended cultivation of embryos to the stadium of blastocyst and its influence on success of assisted reproduction and facilitation of pre implantation diagnosis, analysis of cultivation media and derivation of human embryonic stem cells.

Author summarizes current literary findings in assisted reproduction and examines the currently used methods. Author also submits his own published experimental works, in which he compares his own results of infertility treatment with usage of extended cultivation to blastocyst with results of other techniques. Furthermore author submits his own published experimental works which are using extended cultivation for pre implantation diagnosis and its improvement. Another experimental works includes possibility of stem cells derivation.

Usage of extended cultivation to blastocyst convincingly leads, according to author´s own experiments and simultaneously to available literary findings, to higher success of infertility treatment. This is especially significant by middle-aged mothers. Sufficient term of cultivation enables not just selection, but also biopsy and its generic treatment. Long-term cultivation also enables analysis of cultivation media – but these didn´t met the expectations for increase of treatment successfulness.

Current sophistication of embryonic analysis brought into assisted reproduction significant increase of successfulness. But still remains a few critically discussed facts such as disruption of embryonic integrity when performing pre implantation genetic analysis and also yet unexplained influence of mosaicism on results of this technique. The resulting solution should be further experiments with aimed to describe viability of embryo and by that non-invasively select the best embryo for single-embryo-transfer.