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Effect of Combined Cryoprotectant of Ethylen Glicol and Propanodiol on Embryo Cryopreservation to Blastomere Cell Apoptosis and Blastocyst Quality

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Abstract

Freezing embryo is a method to store embryo. So far embryo quality after it is frozen then warmed is still low, therefore when the embryo is transferred to recipient; it will result in low conception rate. Use of single cryoprotectant is not able to maximally protect embryo to extreme temperature change, it is shown on post warming embryo quality which is still low. Use of combined cryoprotectant of ethylene glicol and propanediol in order to maximally protect intracellular embryo as both cryoprotectants have different characteristics to protect cell.

To investigate compositions of cryoprotectant medium which is able to maximally protect embryo so that it results in high conception rate post warming.

The research was divided into four groups: T1 : Etylene Glicol 30%, T2 : Propanediol 30%, T3: Etylene Glicol 10% + Propanediol 10%, T4: Etylene Glicol 15 % + Propanediol 15%. Freezing embryo was done for a week then warming was carried out, next examination on viability and apoptosis of blastocyst was done.

Blastocyst viability of T4 was the highest compared to the other groups (82.75± 4.944; $p<0.05$). Observation on blastomere apoptosis showed that blastomere apoptosis of group T3 (7.20 ± 2.168; $p<0.05$) and T4 (4,80 ± 1,304; $p<0.05$) was lower than that of group T1 and T2. Combination of Etylene Glicol 15% + Propanediol 15 % was the best cryoprotectant to increase blastocyst viability and decrease number of apoptosis.

Experimental article (J Int Dent Med Res 2017; 10(3): pp. 00-00)