P-109 Comparison between the outcome of sperm vitrification protocol and conventional slow freezing protocol for semen cryopreservation

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Study question: Does sperm vitrification technique helps in increasing sperm survival and low DNA fragmentation index post warming.

Summary answer: Sperm vitrification protocol results in better motility, high progression and low DNA fragmentation index as compared to slow freezing.

What is known already: Cryopreservation is ceasing and resuming the cell metabolism, which can be achieved by different techniques like slow freezing and vitrification .Vitrification allows solidification of the cells and extracellular milieu into a glass like state without formation of ice which protects intracellular and extracellular ice formation, and further helps in avoiding different types of cryo-injuries and cellular damage. Study design, size, duration: Comparative study from July 2019 to Oct 2020 in IVF unit of IKDRC Hospital. Two hundred and ten patients were randomized by computer generated list and divided into two groups. Group 1 (n= 110) samples cryopreserved by vitrification and Group 2 (n=100) samples cryopreserved by conventional slow freezing.

Participants/materials, setting, methods: Semen sample were analyzed by WHO 2010 laboratory manual, including all normozoospermic samples , other abnormal samples were excluded from the study . Method of semen preparation before cryopreservation is similar for both the groups, double density gradient method of preparation was used . Semen sample with high viscosity, hypo and hyper-spermia were also excluded. Similar cryovials of 2ml volume were used for both groups.

Main results and the role of chance: In group 1 where samples were cryopreserved by vitrification sperm motility was (54.3 % vs 49.2%)vs in group 2 where samples were cryopreserved by slow freezing , non- significant difference were observed , but progressive motility was significantly higher in group 1 as compared to group 2 (36.8%vs17.9%) and DNA fragmentation index is significantly lower in group 1 vitrification than in group 2slow freezing (9.7% vs 20%).

Limitations, reasons for caution: Technical proficiency of the operator to avoid human errors and still larger randomized control studies are needed to strengthen these results

Wider implications of the findings: Our study demonstrates that vitrification is better than slow freezing of human sperm, improved survival rates with high progression were found with vitrification and low DNA fragmentation index were also observed in samples cryopreserved with vitrification protocol.

Trial registration number: not applicable