THE SUPRAPHYSIOLOGICAL LEVELS OF OXIDATION REDUCTION POTENTIAL (ORP) PRESENT IN THE HUMAN EMBRYO CULTURE MEDIA AFFECTS BLASTOCYSTS FORMATION AND ONGOING PREGNANCIES IN IVF CYCLES

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INTRODUCTION

• The oxidative stress in embryos can be induced by means of atmospheric oxygen concentration, culture media, cell manipulation, cryopreservation etc.
• This results in cell membrane damage, DNA damage, delayed development and reduced their viability.
• The supraphysiological levels of ORP measured using MiOXSYS system in culture media affects the development of 3PN human embryos.
• The overall levels of ORP found in follicular fluid from oocyte donor is 250% lower than Hepes media and 175% lower than embryo culture media.
• Hence ORP is the best indicator of oxidative stress in embryo culture media compared to other parameters.

EXPERIMENTAL DESIGN

Figure 1: Blastocyst formation rate of embryos cultured in natural (adjusted) ORP culture media vs supraphysiological ORP culture media.

Figure 2: Ongoing pregnancy rate from embryos cultured in natural (adjusted) ORP culture media vs supraphysiological ORP culture media.

RESULTS

CONCLUSIONS

• The result from the current study indicate that the EmbyORP® can be used to scavenge the supraphysiological levels of ORP found in the embryo culture media.
• Adjustment of ORP levels in human embryo culture media increased the blastocyst formation and ongoing pregnancy rate in IVF cycles.