Impact of virtual reality (VR) with hypnosis and VR with distraction on anxiety and pregnancy rate before sedation for oocytes retrieval (OR) : a double-blinded randomised study

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Background and goal of the study

Evidence is emerging of an association between stress and infertility. Anxiety can affect pregnancy rate following an in-vitro fertilisation procedure¹. Reducing anxiety levels could promote the ability of the patients to face this stress and promote a greater chance of pregnancy in that context. Hypnosis reduces emotional distress associated with medical procedures² and has shown its efficacy to increase clinical pregnancy rate when used during embryos transfer³. VR is an immersive 3D experience, created using a visual headset and headphones. The goal of this study is to evaluate the effect of VR session with and without hypnosis on anxiety level and on pregnancy rate before sedation for OR.

Material and methods

After written informed consent, 100 women between 18 and 42 years old scheduled for OR under sedation were included in a prospective randomised double-blinded study (NCT03064061). Exclusion criteria were patients taking psychotropics drugs or blind and deaf patients. A visual anxiety scale (VAS) as well as a Spielberger's Scale Trait Anxiety Inventory (STAI) were performed before (t1) and after VR (t2) session and before leaving the hospital (t3). For OR, remifentanyl (0.1µg/kg/min) and ketamine (0.15mg/kg) were used and propofol added as needed. Distraction Group (n=56) received a VR session (underwater walk) and Hypnosis group (n=44) received a VR session with hypnosis focus on breathing, slowing respiratory rhythm and suggestions of reuse the technique later to find well-being and calm as needed (AQUA Oncomfort®).

The primary endpoint of the study was the evaluation of pregnancy with ultrasound (US) at 12 weeks (clinical pregnancy). Secondary outcomes included impact of VR on anxiety (VAS and STAI) and evaluation of pregnancy with blood beta-HCG 14 days after pick-up (biological pregnancy). Data are presented as P50 (P25-P75) or numbers (%). A repeated measure ANOVA was performed to analyze the effect of time and group. Mann Whitney, Chi-square tests were used; p<0.05 was considered significant. To show a statistically significant improvement of 5% of clinical pregnancy rate with an alpha 0,05 and a power of 0,8, a total of 271 patients should be included in each group.

Results and discussion

One patient in both groups was excluded. There was no significant difference regarding anxiety scores between groups (p=0.23) but the scores significantly decreased within groups. There is a statistically significant difference between the two groups concerning the biological diagnosis of pregnancy at 14 days, and this difference was present but not statistically significant for clinical pregnancy at 12 weeks (US).

Table 1 : results

	VR Distraction n = 55	VR Hypnosis n = 43	p
VAS anxiety (0-100)			
t1	34±23*	40±24*	0,23
t2	22±21#	26±23#	
t3	12±17	14±24	
STAI (20-80)			
t1	37±10**	40±12**	0,23
t2	29±9	32±10	
t3	28±7	29±10	
Propofol consumption (mg/kg)	0,6 (0,23-0,93)	0,6 (0,34-0,93)	0,83
Embryo transfer	48	35	
Positive beta-HCG (biological pregnancy)	10/48 (20,8%)	16/35(45,7%)	0,02
Positive US 12 weeks (clinical pregnancy)	7/48 (14,6%)	8/35 (22,9%)	0,3

* : p < 0.001 t1 vs t2 and t1 vs t3, # : p = 0.002 t2 vs t3 ** : p < 0.001 t1 vs t2 and t3

Conclusions

The preliminary results of this study show that VR sessions before sedation for oocyte retrieval significantly reduce women's anxiety. Type of suggestions used during hypnosis VR session might show a significant positive impact on the biological pregnancy rate (posthypnotic suggestions of reuse the technique by self-hypnosis to be more relaxed) but not on clinical pregnancy rate. The small number of patients included at this time precludes any definitive conclusion.

References

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