

PureSperm[®] Buffer, for optimal dilution of *PureSperm*[®] 100

Introduction

PureSperm[®] density gradients have been used widely in recent years to prepare human sperm for ART. The process involves preparing a gradient of two or more layers, by diluting the 100% stock solution of *PureSperm*[®] to provide suspensions of different densities and layering them carefully in a centrifuge tube. Liquefied semen is then placed on top of this discontinuous density gradient.

Previously there was no specific product for diluting *PureSperm*[®]. However, since the ionic composition, osmolality and pH of the sperm's environment can induce premature hyperactivation and reduce sperm viability, it is essential to use a diluent which will not adversely affect the balanced composition of *PureSperm*[®].

PureSperm[®] Buffer has been developed as the optimal diluent for *PureSperm*[®]. The objectives of the study presented here were to evaluate *PureSperm*[®] Buffer for its suitability as a diluent for *PureSperm*[®]. The trial was performed by Dr. B. Balaban of the American Hospital in Istanbul.

Experiments and Results

Sperm were prepared on *PureSperm*[®] gradients made by diluting *PureSperm*[®] with either the buffer usually used by the clinic (Group 1) or *PureSperm*[®] Buffer (Group 2). After assessing the sperm preparations for number of sperm, % motility and % viability, the sperm were used for ICSI. The following data were recorded: number of oocytes fertilised, and number of

resulting embryos which were classified as "good", number of embryos transferred, and number of pregnancies resulting from the transfers (Table 1).

Table 1. Analyses of sperm preparations, fertilisation and subsequent embryo development.

	Usual buffer	<i>PureSperm</i> [®] Buffer
Mean no. motile sperm	2.1 x 10 ⁶	3.2 x 10 ⁶
No. oocytes	654	704
No oocytes fertilised	496 (76%)	542 (77%)
No. good embryos	293 (59%)	342 (63%)
No. embryos transferred	148 (mean 3.2)	153 (mean 3.0)
No. pregnant	19 (41%)	21 (41%)

Conclusions

- Using *PureSperm* Buffer to dilute *PureSperm*[®] gives a higher yield of motile sperm after density gradient preparation.
- The sperm show a higher rate of fertilisation in ICSI, and more of the fertilised oocytes develop into embryos classified as "good".
- Optimised sperm preparations may give patients a better chance of becoming pregnant in ART.