PureSperm® SpeediKit

simple, fast, single-layer technology for preparing human sperm

Introduction

Some clinicians are preparing human sperm by centrifugation on a **single layer of colloid** as an alternative to density gradient preparation. Nidacon has developed a kit, the ***PureSperm® SpeediKit***, for easy, rapid sperm preparation, based on centrifugation on a single layer of ***PureSperm®*** colloid**.** The sperm pellet is then washed in an optimised salt solution (***SpermAssist™***). The kit contains both the colloid and washing solution already dispensed in borosilicate glass centrifuge tubes, plus a semen collection tubes. As a result, the5-patient kit is quick and easy to use, for optimal convenience and quality.
The following experiments were conducted to test the efficacy of the kit in preparing sperm for IUI.

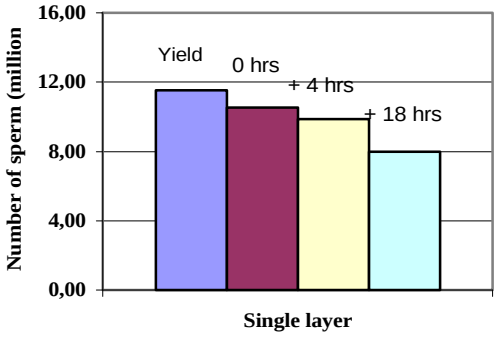
Experiments and results

1. Preparation of human sperm on a single layer .

Aliquots (1.5 mL) of ejaculates (n = 8) were prepared on a single layer of ***PureSperm®*** colloid (4 mL), by centrifugation at 300 x ***g*** for 20 minutes. The sperm pellet was transferred to ***SpermAssist™*** (10 mL) for washing by centrifugation at 500 x ***g*** for 10 minutes. The sperm pellet was re-suspended in ***SpermAssist™*** and the motility and viability were assessed at three time points by both subjective motility analysis and by computerised analysis using the Hobson Sperm Tracker. The sperm preparations were kept at room temperature (approximately 22°C) for 18 hrs.

The resulting sperm preparations (Figure 1) contained a mean of approximately 90% motile sperm immediately after preparation with at least 70% sperm remaining viable 18 hrs after preparation. These sperm preparations were considered to be equivalent to density gradient preparations in terms of yield of motile sperm.

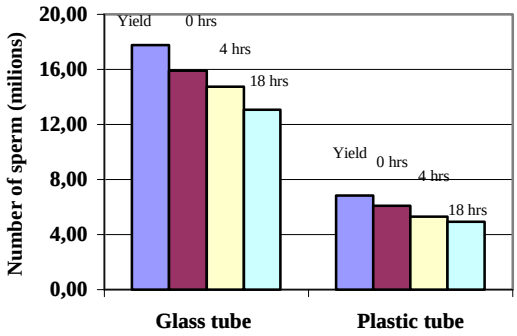
Figure 1: Single layer preparation of sperm: total yield and number of motile sperm at three time points (n = 8).



2. Effect of tube material on sperm preparation

Aliquots of human sperm (n = 8) were prepared by the single layer technique, using either (i) polypropylene conical centrifuge tubes, or (ii) borosilicate glass conical centrifuge tubes, for both the single layer centrifugation and the pellet-washing steps. A greater yield of motile sperm was obtained from the preparations in borosilicate glass centrifuge tubes than in plastic tubes (Figure 2).

Figure 2: Effect of composition of tube on total yield and number of motile sperm in a single layer sperm preparation (n = 8).



3. Cryopreservation of sperm prepared by the single layer method

Aliquots of semen (n = 8) were prepared either by the single layer method or on a PureSperm density gradient, and were frozen using ***Sperm CryoProtec™.*** The recovery rate of motile sperm after thawing was less for the single layer sperm preparation method (50.7%) than for the density gradient preparation (58.4%), although the difference was not statistically significant.

Conclusions

- The single layer preparation method offers a convenient and rapid method of processing sperm for IUI.
- The use of borosilicate glass tubes instead of plastic tubes to package the ***PureSperm®*** single layer and the ***SpermAssist™*** results in a greater yield of motile sperm for IUI.
- Human sperm prepared by the single layer method can be cryopreserved successfully in ***Sperm CryoProtec™.***

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