**Sperm cryosurvival in three commercially available cryopreservatives: a comparative study**


**Objectives:** We compared the effects of three commercially available cryopreservatives to determine which is most effective in preserving sperm quality.

**Design:** Controlled prospective study

**Materials and Methods:** Semen specimens were obtained by masturbation from 10 subfertile men and 10 healthy donors after 2 to 3 days of sexual abstinence. After liquefaction, each sample was divided into three aliquots. Each aliquot was cryopreserved by freezing protocol recommended by Irvine Scientific (Santa Ana, CA). Briefly, the entire freezing medium was added at one time to give a final 1:1 volume ratio of freezing medium to ejaculate. These aliquots were then placed in cryovials in liquid nitrogen vapor phase at -80°C for 2 hours before being immersed in liquid nitrogen. Three commercially available cryopreservatives: TEST-yolk buffer (TYB); (Irvine Scientific, Santa Ana, CA), Sperm freezing medium; (Medi-Cult, Copenhagen, Denmark) and Enhance sperm freeze; (Conception Technologies, San Diego, CA) were tested. Prefreeze and postthaw total sperm count, percentage motility was manually evaluated. Motility (longevity) was analyzed at 0, 60, 120, 180 minutes after thawing and removing the cryoprotectant.

**Results:** Percentage motility decreased significantly in postthaw samples compared to prefreeze values in all samples cryopreserved irrespective of the cryopreservative used. Overall post-thaw motility was highest in specimens frozen in TYB (43.11 ± 14.39) compared to both Sperm freezing medium (35.67 ± 12.13; p< 0.008), and Enhance sperm freeze (29.22 ± 10.52; p< 0.004). Lowest cryosurvival was seen in patient specimens frozen in Enhance sperm freeze (26.16 ± 8.75%) compared to Sperm freezing medium (34.75 ± 10.68; p< 0.003) or TYB (38.30 ± 11.83; p< 0.003). Cryosurvival rate was comparable in patient specimens cryopreserved in either TYB or Sperm freezing medium. Highest cryosurvival was seen in donor specimens frozen in TYB (47.92 ± 15.92%) compared to Enhance sperm freeze (32.27 ± 11.68; p< 0.03) or Sperm freezing medium (36.58 ± 13.96; p< 0.03). Specimens cryopreserved in TYB had the highest sperm motility at 60 minutes compared to aliquots frozen in Sperm freezing medium and Enhance sperm freeze at 60 minutes.

**Conclusions:** Both TYB and Sperm freezing medium provide comparable post-thaw sperm quality. Semen specimens freeze better in TYB, suggesting that this medium gives better protection to fragile population of spermatozoa. Enhance sperm freeze media performs poorly as a cryoprotectant.

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