Does supplementation of sperm freezing/thawing media with Ceratonia siliqua improve detrimental effect of cryopreservation on sperm parameters and chromatin quality in normozoospermic specimens?

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Abstract

Human sperm banking is an important procedure in the assisted reproductive technique centers. It entails sperm damage. The aim of this study was to investigate beneficial effect of Ceratonia siliqua (C. siliqua) supplement in freezing/thawing media on post thaw sperm parameters and sperm chromatin quality in normozoospermic samples. Forty normozoospermic specimens were included in this prospective study. Each sample was divided into ten groups. In groups one to five, 0 (as control group) 5, 10, 20 and 30 µg/ml C. siliqua were added to freezing medium and in groups six to ten, similar concentration of C. siliqua were added to thawing medium for 30 min incubation. Sperm concentration, progressive motility, normal morphology, viability, aniline blue (AB), toluidine blue (TB) and sperm chromatin dispersion (SCD) staining tests were evaluated before vitrification and after thawing. The results showed that 10 and 20 µg/ml supplementation of C. siliqua in freezing/thawing media significantly increased progressive motility, normal morphology and viability of sperm ($p < 0.05$) as well as decreased AB, TB and SCD ($p < 0.05$). Also, 20 µg/ml had significantly higher improvement compared to 10 µg/ml C. siliqua ($p < 0.05$). The present study showed that C. siliqua supplemented freezing/thawing media can improve sperm quality of normozoospermic samples after freezing/thawing.

KEYWORDS:

Ceratonia siliqua; Cryopreservation; Human sperm; Sperm banking; Sperm quality