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Poster Presentations

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Impact of biological and artificial seminal fluids on sperm parameters and DNA status in asthenozoospermic ejaculates

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Background: The chemical composition and physiological properties of seminal fluid (SF) affect sperm quality.

Objective: To investigate the effects of in vitro exposure of artificial seminal fluid (ASF) and biological SF on sperm quality.

Materials and Methods: Asthenozoospermic ejaculates (n = 20) were divided into two aliquots. The first aliquot was centrifuged for obtaining asthenozoospermic SF. The second aliquot was processed with density gradient centrifugation (DGC) and the pellet was diluted separately with following media: (I) ASF; (II) Ham's F10 medium; (III) normozoospermic SF; and (IV) asthenozoospermic SF. Sperm parameters and DNA status were assessed after DGC as well as 2h and 24h after incubation.

Results: The data showed that sperm progressive motility, viability and DNA integrity were significantly higher in group I than control immediately after DGC ($p = 0.009$, $p = 0.003$ and $p < 0.0001$, respectively). At time 2 h, a higher rate of progressive motility was observed in both group I and control compared with group II ($p = 0.0008$ and $p < 0.0001$, respectively). Similar pattern in progressive motility was noticed at time 24 h for both group I and control as compared with groups II and III ($p < 0.0001$). DNA fragmentation index (DFI) was significantly lower in groups II than III and control at time 2 h ($p = 0.0004$ and $p = 0.0001$, respectively). Additionally, DFI of group II was significantly lower compared to groups I, III and control at the 24 h time point ($p = 0.003$, $p = 0.0004$, and $p < 0.0001$, respectively).

Conclusion: Normal SF showed the protective role on sperm DNA structure. Moreover, ASF preserved sperm motility better than biological SF during 24 h; despite being similar to normal SF regarding DNA integrity preservation in short time.

Key words: *Artificial seminal fluid, Asthenozoospermia, DNA fragmentation index, Density gradient centrifugation.*

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