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Does sperm DNA fragmentation impair fertility?

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Background: There is a passionate desire for couples to own their own biological children. Unfortunately, infertility index has been increasing with about 50% attributed to male factor infertility. Sperm DNA fragmentation has been suggested as one of the causes of infertility in men however, there has been a controversy as regards its relationship on the successful management of infertility.

Aim: This study is aimed at determining the impact of sperm DNA fragmentation on fertility potentials in a rat model.

Materials & Methods: 20 adult male SD rats were randomly divided into four groups of five rats each. Groups A1 (distilled water) and B1 (2 g/kg of 30% v/v ethanol) lasted for four weeks while groups A2 (control; distilled water) and B2 (2 g/kg of 30% v/v ethanol) lasted for eight weeks. At the end of each treatment, the animals were introduced to female SD rats on the pro-estrous day of their cycle. The testis was harvested and tested for oxidative stress while the cauda epididymis was harvested to test for epididymal sperm parameters and sperm DNA fragmentation.

Results: The sperm count, sperm motility and the number of fetuses sired by the animals that received alcohol decreased significantly. There was also a significant increase in malondialdehyde (MDA) and sperm DNA fragmentation and a concomitant decrease in testicular superoxide dismutase and reduced glutathione levels in animals that received alcohol compared to control.

Conclusion: Increased sperm DNA fragmentation alters the ability of spermatozoa to fertilize oocytes.

Biography

Akang EN is an Anatomist with special interest on Fertility. He is currently pursuing his Post-doctoral training in the School of Laboratory Medicine and Medical Sciences, University of KwaZulu-Natal, South Africa. He teaches Anatomy including Embryology in Department of Anatomy at University of Lagos. He has over six years of experience in lecturing Anatomy in tertiary institutions and has been constantly involved in cutting edge research in fertility and has over 13 publications in this field. His research is focused on "Studies of the role of oxidative stress, DNA integrity and apoptosis in the pathophysiology of male reproductive system".

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