

Title : The dose –dependent effect of nanomicelle curcumin on carbohydrate and lactate transporters in rats testicular tissue

Curcumin, an active agent of turmeric, exerts anti-inflammatory and antioxidant properties. However, it has been shown that chronic and high-dose consumption of curcumin can adversely affect male potential. Therefore, the current study tried to investigate the dose-dependent effect of reproductive nanomicelle curcumin on glucose and lactate transporters in the testicular tissue. For this purpose, 24 mature male Wistar rats were divided into 4 groups, including control (received .5 ml normal saline, and nanomicelle curcumin-received (7.5 mg/kg, 15 mg/kg, 30 mg/kg, orally, daily). Following 48 days, to explore the changes in expression levels of GLUT-1, GLUT-3, MCT-1, and MCT-4 the animals were euthanized and the testicles were dissected. The observations revealed a significant ($p < 0.05$) reduction in the mRNA levels of all transporters in the 15 mg/kg and 30 mg/kg nanomicelle curcumin-received groups versus the control and 7.5 mg/kg nanomicelle curcumin-received groups. similar results were found in mean distributions of GLUT-1+, GLUT-3+, MCT-1+, and MCT-4+ cells in the aforementioned groups. Moreover, the mean levels of lactate and lactate dehydrogenase were decreased in all nanomicelle curcumin-received groups compared to the control rats. In conclusion, chronic and high-dose consumption of nanomicelle curcumin, in addition to suppressing the testicular antioxidant status, is able to impair the metabolic interactions in the testicular tissue.

Key Words: Nanomicelle curcumin ,MCT-4,Spermatogenesis. Rat.