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Effect of vitamins C and E on reproductive system of male rats treated with sodium fluoride

N. A. H. ALKasim and H. W. K. Aqwaan

Department of Physiology, Biochemistry & Pharmacology, Collage of Veterinary Medicine, University of Mosul, Mosul, Iraq

Abstract

The objective of the study was to investigate the effect of vitamin C administration (200 mg/ kg, orally) concomitantly with sodium fluoride (100 ppm in drinking water) for 60 days, the effect of vitamin E administration (500 mg / Kg diet) with sodium fluoride (100 ppm in drinking water) for 60 days and the effect of both vitamins in adult male rats. Sodium fluoride alone caused significant decrease in total sperms count, the percentage of the live sperms and epididymal head weight associated with significant increase in the percentage of the sperm abnormalities compared with the control group. Administration of vitamin C with sodium fluoride and the two vitamins with sodium fluoride produced a significant increase in total sperms count, the percentage of the live sperms and the relative weight of the epididymal head weight, accompanied with a significant decrease in the percentage of sperm abnormalities compared with sodium fluoride group. There were no significant changes in the total sperms count in vitamin E group. A significant increase in the percentage of the live sperms and the epididymal head weight, and a significant decrease in the percentage of sperm abnormalities compared with sodium fluoride group. It could be concluded that antioxidants administration (vitamin C or vitamin E and the interaction between

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vitamin E and C) concomitantly with sodium fluoride reduce the adverse effects caused by sodium fluoride on sexual efficiency of the adult male rats.

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 (MDA) Malondialdehyde
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 gavage needle
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 (BDH, Limited Poole England)
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(P≤0.05)

(P≤0.05)

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Cover slide

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one way analysis of variance

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(P≤0.05)

Sialic acid

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ATPase

(P≤0.05)

Mg⁺²

ATPase

(P≤0.05)

Ca⁺²

ATPase

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C
(P≤0.05)

Superoxide dismutase

Catalase

(P≤0.05)

MDA

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E

3 beta-

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() 17 beta-hydroxy hydroxy steroid dehydrogenase(3β-HSD)
steroid dehydrogenase (17β-HSD)
Testosterone

(/) E (/) C :

%	%	Sperm/cumm×10 ⁶		
a 4.2±30.00	a 3.86±43.33	ab 0.125±1.343		
d 1.16±60.40	b 2.97±26.80	d 0.093±0.720		
bc 3.82±43.33	a 3.86±46.67	a 0.676±1.591	C	+
c 3.93±46.38	a 8.16±44.67	cd 0.117±0.967	E	+
b 3.74±36.3	a 6.06±60.50	abc 0.730±1.100	C+E	+

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.005

(/) E (/) C :

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a	a	a	a	a	a
10.54±305.29	25.10±139.83	10.64±59.64	3.77±41.96	5.36±71.87	40.47±435.63
a	a	a	b	b	a
85.02±230.37	25.40±168.56	9.31±52.32	7.54±34.95	4.89±50.412	15.62±376.03
a	a	a	a	a	a
41.32±217.55	40.02±108.13	8.28±42.12	9.24±42.06	9.79±65.24	30.12±437.07
a	a	a	ab	a	a
61.38±291.37	25.29±188.33	3.23±69.79	3.81±36.49	2.14±73.62	84.13±415.02
a	a	a	ab	a	a
51.47±251.88	42.23±112.58	12.27±67.51	9.88±35.03	5.69±70.39	40.26±337.12

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