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Apoptosis phenomenon in seminiferous tubules is thought to be one of the causes of impaired testicular function in Wistar rats

Background:

Male fertility disorders are attributed to exposure to certain environmental factors such as chemicals, pesticides, heat, electromagnetic radiation, and heavy metals. Numerous studies performed on the reproductive system of male animals have reported lead as a toxic substance for testicular functions, such as significant reductions in sperm count in the epididymis as well as the arrest of spermatogenesis. In order to understand the mechanism of these disturbances, the phenomenon of apoptosis was evaluated by immunohistochemistry and molecular analysis in male Wistar rats. The experiments were carried out on ten (10) young male pubescent rats, 90 ± 5 days old, divided into two batches of five (5): a control batch and an experimental batch. The control lot received distilled water as drinking water while the experimental lot received the 0.3% lead acetate solution. After 90 days of exposure, the rats of both batches were euthanized and the testes were isolated for assessment of the apoptosis phenomenon by immunohistochemistry and for evaluation of the expression of anti and pro apoptotic genes by RT-PCR. Immunohistochemistry revealed $10.4\% \pm 1.04$ of apoptotic cells in the seminiferous tubules of the control rats compared to $23.80\% \pm 1.74$ in the experimental rats. As for the markers of apoptosis, the results showed in the rats of the experimental batch a reduction in the expression of P53 and Caspase-3 genes and an overexpression of TNF α gene. Exposure of rats to lead leads to a significant increase in the phenomenon of apoptosis in the seminiferous tubules and could explain the disturbance of testicular function.

Biography:

Martin Kouassi KONAN, PhD in Molecular Biology and Reproduction at the Pasteur Institute of Côte d'Ivoire. My research work focuses on the Environment and Reproductive Biology, particularly on the impact of heavy metals on reproductive organs: This work has been valued by several publications and scientific communications. Recently in the fight against the pandemic in Covid-19, we have provided our expertise in mass screening at large gatherings including during the 15th Conference of the Parties (COP-15) of the United Nations Convention to Combat Desertification and Drought and currently at the airport Felix Houphouët-Boigny (Ivory Coast).

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