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In vivo genotoxicity of sodium fluoridein mouse bone marrow cells

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Fluoride (F) toxicity is a major threat to millions of people all over the world including India. It causes skeletal fluorosis as well as affects soft tissues. Fluoride is also reported to be genotoxic in human and other mammals though contradictory findings exist. We reported that even at equivalent dose of naturally prevailing concentrations, sodium fluoride (NaF) exerts significant genotoxicity to mouse bone marrow cells (BMCs). Interestingly the genotoxicity was not dose dependent showing the highest effect at 7.5-15 mg NaF/L which is equivalent to 3.4-6.8 mg F ion/L. We also reported that a significant level of reactive oxygen species (ROS) is generated in NaF treated mouse BMCs. Decreased level of glutathione, glutathione-S-transferase and increased lipid peroxidation supported that F-induced toxicityis mainly mediated via ROS generation. NaF-treatment also exhibited a higher population of Annexin-V positive cells. Till date the molecular mechanism of F-toxicity is not fully understood. Nuclear factor (erythroid-derived 2)-like 2 (Nrf2) is a transcription factor which binds to the anti oxidant responsive elements of antioxidant genes and therefore may play a major regulatory role in F-induced genotoxicity. We therefore attempted to study the expression pattern of some of these antioxidant genes viz. glutathione reductase, heme oxygenase1, NADPH Quinone Oxidase1 related to Nrf2 signaling pathway as well as Hsp70, glutathione-S-transferase and gamma glutamyltransferase. The expression pattern of Kelch-like ECH-associated protein 1, an inhibitor of Nrf2 was also monitored simultaneously. The expression pattern of these genes will be discussed to understand the role of Nrf2 in F-induced genotoxicity.

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Cytopathology: The cervical intraepithelial neoplasm (CIN) among women in Abakaliki, Nigeria

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The prevention of cervical cancer through cervical screening cytology (pap smear) remains a major medical practice in cancer prevention and has reduced the incidence of cervical cancer in developed countries. Despite the extensive and routine use of pap smear cytology in advanced countries, it is non existence or rudimentary in most developing countries. In Abakaliki Nigeria pap smear cytology is at its rudimentary stages and with the women either not aware or are not interested in the pap smear cytology due to culture and religious belief.In this study we screened women who attended the Federal Teaching Hospital Abakaliki for dysplasia (cervical intraepithelial neoplasm (CIN)) using pap smear cytology method and enzyme linked immunoassay (ELIZA) method for HPV assay. The results showed that 360 women aged 20-63 years with mean age of 34 years participated in the study and their pap smear cytology showed that 60 (16.7%) are normal smear; 196 (54.4%) cervicitis; 48 (13.3%) cervical dysplasia; 48 (13.3%) cervical dysplasia with background cervicitis; 8 (2.2%) inadequate cytologic smear. The cervical dysplasia (CIN) were further classified into mild dysplasia (CIN I) 36 (10%); moderate dysplasia (CIN) 53 (14.7%); severe dysplasia (CIN III) 12 (3.3%). There was a significant association between dysplasia (CIN) and human papilloma virus (HPV) infection ($p \leq 0.05$) and showed that 90.1% of all the cases of dysplasia (CIN) were HPV positive and only 9.9% were HPV negative. All cases of severe dysplasia (CIN III) had HPV infection and all those who were negative for HPV had no severe dysplasia (CIN III). We conclude that cervical dysplasia (CIN) is prevalent among women in Abakaliki and HPV infection is associated with severe dysplasia (CIN III) and recommend routine pap smear cytology and HPV testing for all sexually active women in Abakaliki Nigeria to prevent the morbidity and mortality of cervical cancer.

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