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Micronuclei and other nuclear anomalies in exfoliated buccal mucosa cells of Mexican women with cervical cancer

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Cervical cancer is the second most common cancer in women worldwide and the leading cause of cancer mortality in women in developing countries. Several studies have shown that the genome of primary cancer patients is unstable. The aim of the present study was to evaluate genomic instability in cervical cancer patients by means of the micronucleus (MN) assay. The frequencies of nuclear anomalies including micronuclei (MNi), binucleates (BN), and broken eggs (BE) were evaluated in exfoliated buccal mucosa cells (BMC) of Mexican women with primary cervical cancer and healthy women. A case-control study was performed in 40 never-treated patients in the State Cancer Center of Nayarit and 40 healthy females were used as the control group. Average age of participants was 47.07±8.21 and 47.67±8.04 years for cancer patients and control subjects, respectively. They signed an informed consent and were asked to complete a questionnaire concerning smoking habits, alcohol consumption, health status, diet and consumption of drugs or antioxidants. BMC were collected from each subject. A polished slide was used to collect cells from the buccal mucosa of the inner lining of both cheeks in each subject. Exfoliated cells were smeared on two slides. Smears were air-dried, fixed in 80% ethanol for 48 h and then stained with acridine orange. Cells were scored at 100x magnification using oil immersion with a fluorescent microscope. MNi andother anomalies (BN and BE) were evaluated in 2000 cells and were scored according to the criteria described by Thomas et al. and Bolognesi et al. Analysis of the data using the Mann-Whitney U-test showed that the frequencies of MN, BN and BE were significantly increased in cervical cancer patients compared with control group ($p<0.0001$). Cancer patients presented 2.82±0.98 MNi, 5.62±1.91 BN and 2.22±1.22 BE versus 0.82±0.26 MNi, 3.32±1.45 BN and 0.58±0.52 BE in control subjects. In conclussion, genomic instability was observed in BMC of Mexican women with cervical cancer.

Biography

Aurelio Flores-García obtained his PhD in Immunology from the University of Guadalajara. He is currently a Professor and Researcher at the Autonomous University of Nayarit in the School of Medicine.

Curcumin and its derivative as novel pharmacological treatment for human breast cancer cell line, *in vitro* study

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Curcumin has been used extensively in traditional medicine for centuries, as it is nontoxic and has a variety of therapeutic properties including anti-oxidant, analgesic, anti-inflammatory and antiseptic activity. More recently curcumin has been found to possess anti-cancer activities via its effect on a variety of biological pathways involved in mutagenesis, oncogene expression, cell cycle regulation, apoptosis, tumorigenesis and metastasis. We studied the anti proliferative effect of various curcumin derivatives against human breast cancer cell line (MCF-7). Many of these show increased cytotoxicity in comparison to 5-FU. The most potent of these compounds are natural curcumin and 7a with IC50 values less than 10 μM. Decreasing the 7 carbon spacer and substitution of (O-me) ,(O-Et), (OH) or (Cl) in R3 position decreased the activity of curcumin. Overall, this review concludes that curcumin and compound 7a show future potential as a powerful broad-spectrum treatment for breast cancer.