allied academies

International Conference on
Internal Medicine & Practice and Primary Care
&
International Meeting on
Breast Pathology & Cancer Diagnosis

April 04-05, 2018 | Miami, USA

Diana Anderson

University of Bradford, UK

Comparison of aspirin and ibuprofen bulk and nano forms in peripheral lymphocytes from breast cancer patients and healthy individuals

Recent studies have suggested that regular intake of some non-steroidal anti-inflammatory drugs (NSAIDs) have a preventative effect against several types of tumours including breast cancer in humans. This work aims to study the effect of both ibuprofen and aspirin on DNA damage using lymphocytes obtained from breast cancer patients and comparing the result with lymphocytes from healthy females as a control. Lymphocytes are useful surrogates for cancer cells. Nanoparticles (NPs) and bulk sizes were used in the comet and micronucleus assays. 250 mg/ml of ibuprofen (NPs and bulk) and 500 mg/ml of aspirin were used as non-toxic doses to treat the lymphocytes. Aspirin, both bulk and nano sizes, showed a significant reduction in DNA damage in the comet and micronucleus assays. However, the effect of aspirin nano ($P \leq 0.01$) was more significant compared to aspirin bulk ($P \leq 0.05$). Ibuprofen, in contrast, showed a significant reduction in micronucleus (MNi) frequency in the micronucleus assay with the nano form ($P \leq 0.001$) being more significant than the bulk form ($P \leq 0.01$), whilst its preventative effect with the comet assay was insignificant. These observations suggest that NPs have better penetration through the nuclear membrane due to their smaller size compared to their bulk size. Aspirin was more effective than ibuprofen in the reduction of DNA damage and MNi formation in the comet and micronucleus assays. NPs were more effective than bulk sizes. The results are consistent with the view that NSAIDs, particularly aspirin and ibuprofen, could have a promising role in cancer treatment including breast cancer.

Speaker Biography

Diana Anderson currently holds the Established Chair of Biomedical Sciences at the University of Bradford, UK. She obtained her first degree in the University of Wales and second degrees in the Faculty of Medicine, University of Manchester. After tutoring at the University of Sydney, Australia, she became a research worker in the Department of Cancer Studies at the University of Leeds and at the Paterson Laboratories, Christie Hospital, Manchester. In 1974, she was appointed as Head of Mutagenesis Studies at ICI's Central Toxicology Laboratory. She joined BIBRA International in 1981 as Head of Genetic and Reproductive Toxicology and became Assistant Director and Group Forum Co-ordinator in 1987. In 1992, she became Senior Associate and Co-ordinator of External Affairs at BIBRA. In 2011, she won a prize as an Enterprise Fellow from Yorkshire Forward. In 2015, she won the Vice Chancellor's award at the University of Bradford for Outstanding Achievement.

e: d.anderson1@bradford.ac.uk

Notes: