

Coronary artery disease and genetic instability

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As in Coronary Artery Disease (CAD) patients, the atherosclerotic tissue depicts genetic instability indicating the involvement of mutations in disease manifestation, it was thought worthwhile to discern whether the peripheral blood lymphocyte (PBL) of CAD patients have any DNA/chromosomal damage. The Cytokinesis-Block Micronucleus cytome (CBMNcyt) assay was used to investigate DNA and chromosomal damage in PBL of patients with an established diagnosis of CAD undergoing treatment at a local hospital. The study group (n=65) comprised CAD patients (n=46) and healthy age- and sex- matched controls (n=19). The CBMN cytome parameters in patients were mostly highly significant ($p < 0.001$) compared to values in controls. There was a 1.5 fold significant increase in percent micronucleated (chromosomal damage) binucleated cells, a very highly significant decline in the Nuclear Division Index (NDI) and the Cytokinesis-Block Proliferation Index (CBPI) and significant cytostatic effects ($p < 0.01$) in terms of the observed number of mononucleated and binucleated cells. DNA damage, as nuclear buds and nuclear bridges, was also observed though it was non-significant. The results indicate the presence of significant genetic (clastogenic/aneugenic) damage in PBL of CAD patients which could be a consequence of disease-pathogenesis and/or medication interactions. The lower values of the proliferative indices also indicate cytotoxic effects and/or inhibition of cell-cycle progression in CAD.

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