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Increased cell-free circulating plasma DNA in cancer prostate

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Background: Prostate Cancer is the most common cancer overall after breast cancer, and is the most common cancer affecting men, who have a lifetime risk 10% of developing the disease and 3% chance of dying. DNA is normally released from an apoptotic source which generates small fragments of cell-free DNA, whereas cancer patients have cell- free circulating DNA that originated from necrosis, autophagy, or mitotic catastrophe.

Aim: To determine the role of total plasma cell-free DNA levels in newly diagnosed cancer prostate.

Methodology: The amount of DNA was determined by a quantitative real-time PCR technique, using two sets of primers to amplify the consensus ALU sequence. ALU 115-bp amplicons were representing the total amount of free cell-free circulating DNA. While ALU 247-bp amplicons representing the DNA released from non-apoptotic cells. DNA integrity was calculated as the ratio of concentrations in each assay.

Results: The levels of plasma cell-free DNA in the cancer group were significantly higher in comparison with the benign tumor group ($P<0.001$) and the healthy control group ($P<0.001$). There was statistically significant association with some prognostic parameters.

Conclusion: Our data suggests that plasma cell-free DNA can be used as non invasive biomarker in prostate cancer.

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