

Elevation of Cell Free DNA During CABG Operations

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Background: Increased levels of plasma cell free DNA (CFD) have been reported in numerous conditions of tissue injury including cancer, strokes, myocardial infarction, trauma and sepsis. The objective of this paper was to follow the changes in CFD levels during standard coronary artery bypass grafting procedure during its several stages.

Patients and methods: In 10 patients who underwent a CABG operation (mean 3-5 grafts) CFD concentrations were measured during five stages of this procedure: before skin incision, before going on cardiopulmonary bypass (CPB), during CPB, at wound closure and one hour after. CFD was measured by a novel fluorometric assay developed at our laboratory. This assay is accurate, quick and inexpensive and is applicable to various body fluids.

Results: The CFD concentration before operation was 496 ± 282 ng/ml (mean \pm SD), mild elevation of CFD concentration 869 ± 380 ng/ml before CPB, and following the connection of the patient to CPB machine a remarkable increase was noticed 2571 ± 767 ng/ml ($p < 0.001$ compared to basal levels). CFD levels decreased significantly upon removal of CPB machine (817 ± 413 ng/ml) and remained at similar levels at one hour after operation (1348 ± 1361 ng/ml).

Conclusion: Our results indicate that the most traumatic and stressful stage in an uneventful CABG procedure is during the performance of the cardiopulmonary bypass. CFD levels can be a possible objective indicator of operative tissue injury that may influence the patient's clinical outcome.