Arch Mal Coeur Vaiss 2005 Dec;98(12):1225-31.

[Diagnostic and prognostic value of heart-type fatty acid-binding protein (H-FABP), an early biochemical marker of myocardial injury]

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- PMID: 16435602

Abstract

Heart-type fatty acid-binding protein (H-FABP) is a 132 amino acids soluble protein, with general characteristics resembling myoglobin. Because of its low molecular weight (15 kd) and cytoplasmic location, it constitutes a biologic marker readily released into the circulation after myocardial injury. Despite the development of various immunoassays to measure H-FABP, few are currently easy to perform, quantitative and applicable in emergency. Most studies have shown the diagnostic sensitivity of H-FABP (i.e. its ability to detect the presence of a myocardial infarction) to be high, above that of myoglobin in patients presenting within 3 to 6 h of after the onset of chest pain. This superiority is attributable to an earlier and more rapid rise in H-FABP than in myoglobin. After thrombolysis, the serum concentrations of H-FABP peak at approximately 4 h after the onset of chest pain, and return to normal values within 24 h. Because of this rapid return of its blood concentration to baseline, H-FABP can contribute to an early biologic diagnosis of post-thrombolysis reperfusion and re-infarction. In absence of renal insufficiency, H-FABP also provides a reliable estimate of infarct size associated with ST segment elevation. When myocardial injury occurs after cardiac surgery, the second peak in H-FABP concentration precedes that of myoglobin, CK-MB or troponins. In addition, H-FABP peaks earlier and is more sensitive than troponins in the detection of subtle myocardial injury in patients presenting with acute coronary syndrome without ST segment elevation, and in patients with severe heart failure, thus offering early prognostic information. Limitations of H-FABP include a limited cardio-specificity, a narrow diagnostic window (20 to 30 h), and a nearly exclusive renal elimination.