Comparison of the heart-type fatty acid-binding protein (H-FABP) with the high sensitive cardiac troponin T

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Introduction:
Heart-type fatty acid-binding protein (H-FABP) is a low molecular weight protein involved in the intracellular uptake and buffering of long chain fatty in the myocardium. It is an early marker for acute coronary syndrome. Troponin T (TnT) is a component of the contractile apparatus of the striated musculature. Cardiac TnT is a cardio-specific, highly sensitive marker for myocardial damage. The aim of our study was to compare the results obtained with the H-FABP and the highly sensitive cardiac troponins (hsTnT) and to test their cardiospecificity in healthy runners.

Materials and Methods:
Twenty three runners (marathon) were enrolled. We drowned samples at three times: just before (T0), just after (T1), and three hours after the end of the race (T3).
H-FABP was determined with a Randox immunoturbidimetric assay and hs-TnT with a Roche electrochemiluminescence immunoassay, both on Cobas 6000.
A linear regression was calculated to observe if there is any correlation between the two biomarkers. Values above the 95th percentile for H-FABP (2.5ng/mL) and the 99th percentile for hsTnT (14ng/L) were considered as positive.

Results:
At T0, none of the subjects were positive for hsTnT but 35% were positive for H-FABP; at T1, 83% for hsTnT and 100% for H-FABP; at T3, 83% for hsTnT and 96% for H-FABP (table 1).
At T0, the regression equation was H-FABP T0 = 3.9454 – 0.1001 x hsTnT T0 (Fig 1); at T1: H-FABP T1 = 51.838 – 1.7026 x hsTnT T1 (Fig 2); at T3: H-FABP T3 = 47.977 – 1.6193 x hsTnT T3 (fig 3). No correlation was observed between the 2 biomarkers at the different time.

Conclusions: We observed a significant increase of H-FABP and hsTnT in runners. These markers are independent to each other. These values could biologically correspond to a heart ischemia. However, we suggested that exercise-induced cardiac hsTnT and H-FABP release is not a marker of exercise-induced pathology but likely a physiologic response to effort or an exercise-induced cardiac remodelling.