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X EVALUATION OF THE NEW TOSOH CARDIAC TROPONIN I ASSAY ON AIA 600II. APPLICATION TO MYOCARDIAL DAMAGE DETECTION IN SEMI-MARATHON AND TRIATHLON RUNNERS

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Cardiac troponin I (cTnI) is a sensitive and specific marker for myocardial damage. We evaluated the new serum cTnI assay available on the AIA 600II analyser (Tosoh Bioscience, Belgium), an easy-to-use instrument particularly well adapted to the emergency laboratory. According to the kit insert, the 99th percentile of the reference values was 0.06 µg/L. The assay showed good precision. The intra- and inter-assay CVs determined on plasma pools with increased cTnI concentrations were 3.4 and 5.2 % (cTnI = 0.36 µg/L) and 1.9 and 4.4 % (cTnI = 3.05 µg/L), respectively. For cTnI concentrations around the decision limit (0.05, 0.07 and 0.12 µg/L), the intra-assay CVs determined on 20 replicates were 11.9, 11.7 and 7.6 %, respectively. The assay showed no cross-reactivity with muscular TnI. In 22 professional football players, the mean ± SD cTnI concentration at rest was 0.04 ± 0.01 (range: 0.03 to 0.07 µg/L). We also studied 6 semi-marathon and 5 triathlon runners before and after the race. Basal cTnI levels which were 0.04 ± 0.01 (n = 11, range 0.03 – 0.06 µg/L) rose to 0.09 ± 0.06 µg/L in the marathon runners (n = 6, range 0.04 to 0.09 in 5 subjects ; 0.22 µg/L for the 6th) and 0.15 ± 0.11 (n = 5, range : 0.05 to 0.34 with 3 subjects above 0.1 µg/L). The AIA 600II has excellent performances, particularly in terms of precision in the low concentration range. This test is well suited for detecting myocardial damage after intense physical exercise.