

Sport-related acute myocardial infarction. Contemporary data from IMACS survey

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Background: Sport-related (SR) acute cardiovascular (CV) events are the main cause of sudden cardiac death in the setting of sport activities. However, data are very scarce regarding onset and follow-up of SR acute myocardial infarction (AMI).

Methods: From the prospective study IMACS (Infarctus du Myocarde et Arret Cardiaque au cours du Sport) patients admitted for a SR-AMI in our university hospital from April 2018 to March 2020 were included. A 12 months follow-up (FU) was achieved through telephone interview to address CV outcomes and sport practice information. Information was obtained from relatives in case of out of hospital sudden cardiac arrest (OH-SCA).

Results: Among the 55 patients included, all were male, with median (IQR) age at 62 (55–69) y. Most common sports were cycling (n=21), fitness (n=7), swimming (n=5) and hiking (n=5). The SR-AMI occurred during effort for 39 subjects and during recovery for 16. Most SR-AMI occurred in public area (n=24), at home (n=16), or in a specific sport location (n=14). An Automated External Defibrillator (AED) was available in the SR-AMI location in only 10, but was missing in 43 (unknown for 2). In 1 subject with OH-SCA, cardiopulmonary resuscitation (CPR), initiated by witnesses, using a public AED, was unsuccessful. The 4 other patients with OH-SCA underwent successful CPR. Among the 55 subjects, 4 were vapers, of whom 1 was a dual user, 17 were current tobacco smokers, 18 were ex-smokers and 2

experienced cannabis and cocaine use. Among the smokers, most smoked (n=10) or consumed cannabis (n=1) <2h before the event. Strikingly, CV history and/or recent symptoms were present in almost half (n=25). Only 10 felt symptoms exclusively during the sport session. Moreover, a medical advice for recent symptoms was found only for 3 subjects. Three patients who experienced prior AMI have neglected symptoms during the index event. Most were ST segment elevated MI (n=35). Only one patient (with OH-SCA) died <3 days after hospital admission. During hospitalization, most underwent revascularization with coronary stenting (n=44) (drug eluting stent in 43 patients), or coronary artery bypass graft (n=6) and no death nor significant CV event occurred. At 1-FU, most attended a rehabilitation program (n=41) and the majority of smokers quit (14/17), with 3 persistent smokers starting to vape. Almost half patients (n=23) decreased their physical activity, and 21 increased it. A significant rate of patient (n=9) added fitness in their usual activity, and as a main sport for 4 of them.

Conclusions: In this on-going monocentric prospective survey in SR-AMI, a high proportion of subjects had prodromal symptoms, of whom only few led to sport cessation and medical advices, when requested, failed to prevent the AMI. Our findings highlight that public and medical education are urgently warranted for SR-AMI prevention.