An increase in sudden unexpected cardiac deaths among young Swedish orienteers during 1979–1992

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Beckground Sixteen cases of sudden unexpected cardiac death, 15 males and one female, are known to have occurred among young Swedish orienteers from 1979 to 1992, of which seven cases occurred between 1989 and 1992. This is considered to be indicative of an increased death rate.

Results Histopathological evaluation showed myocarditis in a higher than expected proportion of cases. In one such case, which we studied before the sudden unexpected death occurred, the victim had suffered a Chlamydia presentation furties by serology, and a nucleotide sequence was found in the heart and lung by means of the polymerase

chain reaction (PCR) that hybridized with a probe specific for that organism. Male Swedish orienteers do not, however, seem to have an increased rate of exposure to this agent. No further sudden unexpected deaths among young orienteers have occurred over the past 3-5 years. At the beginning of that period, attempts were made to modify training habits and attitudes.

(Eur Heart J 1996; 17: 902-910)

Key Words: Sudden unexpected death, athlete, myocarditis, arrhythmogenic right ventricular dysplasia, Chlamydia preumoniae.

Introduction

Orienteering, the task of finding the fastest track through terrain between defined checkpoints by means of map and compass reading in the shortest possible time, has for a long time been a popular sport in Sweden. At present, some 160 000 people of virtually all ages, corresponding to 2% of the entire population, pursue this sport at various levels of competition. A top segment of 3000 are ranked, 70% of whom are men, reflecting the male-to-female ratio within the sport. About 200 of the 3000 compete at the international elite level.

In the summer of 1992, we reported a case of Chlamydia pneumoniae-associated myocarditis and sudden unexpected cardiac death in a young Swedish orienteer^[1]. At that time we were aware of five more sudden unexpected cardiac death cases during the previous few years among young orienteers in Sweden, all belonging to the ranked elite and in whom inflammatory lesions had been found in the heart at autopsy^[1]. In previously published studies of sudden unexpected cardiac death in young athletes, myocarditis was the cause in about 10% of the cases^[2].

In November, 1992, another young Swedish elite orienteer succumbed to sudden unexpected cardiac death, and a retrospective analysis disclosed additional cases in earlier years. This prompted the Swedish Board of Health and Social Welfare to arrange a meeting of health experts to discuss the current situation. The microbial hypothesis was actualized by the fact that Swedish orienteering had been previously struck by an epidemic of hepatitis B, comprising 564 jaundiced cases in 1958-63[3]. The virus was presumed to be transmitted through skin lesions or the legs, resulting from scratches from twigs and brushwood, and common washing tubs which were used after races. It was concluded at the meeting that, although Chlamydia preumoniae had been detected in the myocarditic heart of one case, where tissue sampling had been performed in order to allow for such testing, a broad search for all possible

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