

Sports Medicine

Sport-related hyperhomocysteinemia: a putative marker of muscular demand to be noticed for cardiovascular risk.

OBJECTIVE: Regular physical activity is associated with a reduction of cardiovascular morbidity and mortality; however, evidences of unfortunate cardiovascular events, accompanying elite sport involvement, continue to accumulate. To date, no information is available upon possible peculiarities of the cardiovascular risk profile in athletes.

DESIGN: The aim of this study was to evaluate plasma homocysteine levels in a group of athletes and to search for relationship with vitamin status and other metabolic variables in order to confirm the existence of a "sport-related hyperhomocysteinemia" and to explain its clinical significance. The study population was composed by 82 athletes (59M and 23F) practicing different sports and 70 healthy age matched subjects (40M and 30F) as control group. Besides the general clinical and analytical determinations, the assessed variables included homocysteine, folate, vitamin B12, total and HDL cholesterol, Lactate dehydrogenase (LDH), Creatine Kinase (CPK) and IL-6.

RESULTS: The prevalence of hyperhomocysteinemia (>15 micromole/L) in athletes and controls was 47 % and 15 %, respectively. No correlation was found between homocysteine and all the other investigated variables, in particular plasma folate, blood pressure, Lactate Dehydrogenase LDH, CPK total and HDL cholesterol and IL-6.

CONCLUSION: The results of this study confirm the existence of a sport-related hyperhomocysteinemia which appears linked neither to

the same variables found in the general population, nor to specific training-related variables. We suggest that it would represent an adaptation to training but the possibility of a secondary vascular damage cannot be excluded.