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THE CLINICAL STUDY OF EXHAUSTIVE HEART DAMAGE IN A MILITARY REGION FOR TRAINING STAFF

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Objectives This study through a retrospective analysis of clinical data of patients with exhaustive exercise in Beijing Military Region, summarises the clinical features of exhaustive exercise - induced cardiac injury, to explore the high sensitivity and specificity of simple, fast detection of indicators, preliminary study its pathogenesis and clinical classification, to improve clinical awareness and diagnosis and treatment of disease, provide a theoretical basis for the scientific training facilities.

Methods Six military hospitals to collect a Military General for the past 10 years due to the clinical data of exhaustive exercise pathogenic cardiovascular medical inpatients, clinical data and blood, urine, renal function, serum enzymes and laboratory markers and electrocardiogram, ambulatory electrocardiogram, cardiac ultrasound test indicators were analysed retrospectively.

Results

1. In general: this study collected 137 cases of exhaustive cases of heart damage in 3–10 km cross-country, physical training, military training incidence, accounting for 5.31% of the cardiovascular medicine during the same period the number of hospitalised soldiers. Exhaustive heart damage common symptoms of chest tightness, palpitations, chest pain, dizziness, shortness of breath, syncope; abnormal signs mainly for cardiac auscultation abnormalities, such as arrhythmia, premature contraction, bradycardia, and so on.
2. Laboratory markers: The abnormal increase of 21 cases of blood after recovery compared with the incidence of admission white blood cell, neutrophil values down significantly ($p < 0.01$); haemoglobin also declined, but not statistically significant. 13 cases the urine suggests the presence of varying degrees of haematuria and proteinuria. Discharged from a rest and symptomatic treatment have returned to normal. 21 cases of abnormal renal function, urea, creatinine, uric acid have different degrees, of which 14 cases manifested as hyperuricaemia. Comparison of onset time of admission and after recovery of renal function after recovery of urea, creatinine, uric acid levels were decreased ($p < 0.01$ or 0.05). Serum enzyme abnormalities in 71 cases, the proportion is as high as 51.8%. Comparison of the incidence after admission and after rehabilitation of the serum enzyme recovered ALT, AST, a-HBDH, LDH, CK and CK-MB were significantly decreased, the difference was statistically significant ($p < 0.01$ or 0.05). Exhaustive exercise can lead to elevated serum enzymes, increased in multiples of more than 1 to 3 times of CK and CK-MB ratio of about $29 \pm 23:1$.
3. Check indicators: ECG abnormalities in 94 cases, the proportion is as high as 70.7%. Sinus arrhythmia (37 cases) was the most common. Check the dynamic electrocardiogram prompted to change accordingly. Echocardiographic abnormalities were 27 cases, the performance of valvular regurgitation and decreased cardiac function, cardiac enlargement, wall motion less coordination, pericardial effusion, which is the most common valvular regurgitation, and are mild regurgitation.

Conclusions

1. Exhaustive heart damage in this special population of the army commanders and soldiers have a higher incidence. The common

symptoms of chest tightness, palpitations, chest pain, dizziness, shortness of breath, syncope; abnormal signs of mainly cardiac auscultation abnormalities, such as arrhythmia, contraction, bradycardia, and so on.

2. Indicators of blood, urine, renal function, serum enzymes, electrocardiogram, ultrasound contrast non-exhaustive state with after acute exhaustive exercise, the more obvious exceptions, through rest, treatment it will return to normal. Exhaustive exercise can cause multiple organ damage, in addition to the heart to the kidney is the most obvious.
3. Serum enzyme abnormalities increased after exhaustive exercise, the dynamic changes in ECG and cardiac ultrasound are the most direct evidence of the Exhaustive heart damage, blood, urine, and renal dynamic changes exhaustive exercise result in body injury strong evidence.
4. Because CK-MB, cTnT high specificity to detect simple and cheap reagent, widely used clinical markers to identify myocardial damage better.
5. According to the clinical manifestations and laboratory test results and clinical diagnostic habits, exhaustive heart damage is preliminarily divided into the following four type: (1) simple type; (2) arrhythmia type; (3) heart failure type; (4) sudden death type.