Elevated Creatine Phosphokinase and Creatine Phosphokinase-MB in Acute Laryngitis

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Abstract. Elevated creatine phosphokinase (684 mU/ml) and creatine phosphokinase-MB (3.5%, 23.9 mU/ml) were observed in a 66 year old female with acute laryngitis. The patient had received L-thyroxine because of hypothyroidism for 10 years and her T3 and TSH levels were normal. Acute myocardial infarction was denied by repeated EKG findings. The mechanisms of the enzyme abnormality were discussed. (Keio J Med 40 (1): 19, March 1991)

Key words: CPK-enzyme

Elevated creatine phosphokinase (CPK) with positive creatinine phosphokinase-MB (CPK-MB) has been reported in several clinical conditions other than acute myocardial infarction including hypothyroidism.1-3

Case Report

A 66 year old female presented to the hospital with stridor and was found to have acute laryngitis on indirect laryngoscopy which showed marked laryngeal edema. The patient was known to have hypothyroidism for 10 years and received L-thyroxine 100 µg daily. There was no significant other past medical problem. Laboratory testing revealed CPK of 684 mU/ml and creatine phosphokinase-MB (CPK-MB) of 3.5% (23.9 mU/ml). T3 was 73 µ/dl and TSH was 1.3 µU/ml which were within normal limits. ECG was unremarkable. The remainder of the exams were normal. During the subsequent three days, her stridor resolved with treatment of adrenalin inhalations and antibiotics and the CPK and CPK-MB levels decreased to 299 mU/ml and 4.5% (13.45 mU/ml), respectively after 24 hours, 148 and 0 after 48 hours and 76 and 0 on the third day. Her pulse was 84 regular during the examination. Repeated EKG two weeks later was normal.

Discussion

To the best of our knowledge, elevated CPK and CPK-MB have not been found in acute laryngitis, nor in hypothyroid patients receiving adequate replacement.4 This patient presented with the interesting combination of an elevated CPK and a borderline elevated CPK-MB in acute laryngitis in the presence of treated hypothyroidism. Although CPK may be chronically elevated in normal populations or with other underlying diseases,3 resolution of the CPK paralleling the clinical improvement in this patient suggests a correlation between the acute laryngitis and the elevated CPK levels. While the elevated CPK and borderline elevated CPK-MB may be the result of acute laryngitis, it may have been caused by functional hypothyroid state triggered by the stress of an acute infection. The patient had received the same dose of thyroid replacement for several years and had normal thyroid function tests on presentation. Nevertheless, stress secondary to the acute laryngitis may have resulted in a hypermetabolic state which may have resulted in a transient functional hypothyroidism and consequently, elevated CPK and CPK-MB levels.

References


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