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LABORATORY ASSESSMENT OF MITOCHONDRIAL DYSFUNCTION IN PATIENTS WITH MULTIPLE SCLEROSIS

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Background: Multiple sclerosis (MS) is an inflammatory demyelinating disease affecting more than 2 million people worldwide and considered as a leading cause of non-traumatic disability in young adults in many countries.

Objective: To evaluate the mitochondrial dysfunction in patients with multiple sclerosis (MS) by investigating serum levels of lactate and uric acid (UA) in MS patients and to explore their potential role in pathogenesis of MS as biological markers for monitoring disease activity and progression.

Methods: This case-control study was conducted on 52 Egyptian subjects (32 multiple sclerosis patients and 20 normal healthy individuals as control. Patients were subjected to thorough history taking, detailed neurological examination and clinical assessment of the severity of the disease using expanded disability status scale (EDSS) and fatigue using fatigue severity scale (FSS). Serum level of lactate and uric acid were measured in both groups.

Results: In comparison to the control group, subjects with multiple sclerosis had statistically significant higher serum level of lactate (p=0.001), with no statistically significant difference in serum levels of UA (p=0.337). There was statistically significant negative correlation between serum lactate levels and EDSS-FSS, but no statistically significant correlation between serum UA levels and EDSS or FSS.

Conclusion: MS patients have significantly higher serum lactate level. This can support the hypothesis that mitochondrial dysfunction has an important role in the underlying pathogenic mechanism of the disease. However, the potential value of serum lactate as a marker for monitoring disease activity and progression is questionable

Biography

Ahmed Essmat has completed his MD from Al-Azhar University School of Medicine. He is a Lecturer of Neurology at Al-Azhar University, Egypt. He has published a lot of papers and he is the winner of prize of research in multiple sclerosis in MENACTRIMS 2017.

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