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Plasma and muscle carnitine levels in haemodialysis patients with morphological-ultrastructural examination of muscle samples.

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Abstract

The present study investigates 14 patients on intermittent haemodialysis. Pre-dialysis blood and muscle samples taken for determining plasma free- and acetylcarnitine levels. The tissue fragments were used for light and electron microscopy studies. Our results support the findings of other investigators that patients on haemodialysis generally display decreased free- and acetylcarnitine levels both in plasma and skeletal muscle when compared with control values. Muscle carnitine deficiency was apparently more severe in the longer-term haemodialysis patients. Moreover, a significant correlation (p less than 0.05) between plasma and muscle free-carnitine values was found. Morphologically no pathological alterations were observed in the muscle fibres in 13 of the patients. Light and electron microscopic studies of the muscle fibre of the 14th patient showed a typical nemaline myopathy with rod bodies in the cytoplasm. The muscle free-carnitine concentration in this patient was among the lowest of the group.