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Serum Carnitine Levels in Patients with Coronary Artery Disease

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Abstract: Carnitine is an essential molecule for the transfer of long chain fatty acids through the inner mitochondrial membrane, for beta-oxidation (1). The long chain fatty acids provide a large proportion of the energy requirement of the myocardium. Thus, adequate amounts of tissue carnitine are required to maintain the normal function of the myocardium (2). Experimental studies on acute myocardial ischemia and clinical investigations of patients with congestive cardiac failure have indicated that the myocardial carnitine content was significantly lowered in both conditions, in contrast to raised or normal blood carnitine (3-5). In the present study, alterations in serum carnitine levels were assessed in patients with atherosclerotic coronary artery disease (CAD) who did not exhibit any signs of cardiac failure. The possibility of a correlation between serum carnitine levels and the severity of the disease was also investigated in these patients. The subjects were assessed angiographically, and grouped according to the severity of the coronary artery disease (CAD) as control (n=15) and patients having mild (n=15), moderate (n=15), and severe (n=20) CAD. Serum free L-carnitine levels were measured in all of these groups by an enzymatic spectrophotometric method. There were no significant differences between the serum carnitine levels of the controls and mild and moderate CAD patients. On the other hand, a marked difference was observed between controls and the severe CAD patients (P< O.O1).These results imply that serum carnitine measurements cannot be used to define the presence of CAD, but they can be markers of advanced atherosclerotic lesions.

Key Words: Carnitine, Coronary artery Disease (CAD).

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