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Antiarrhythmic activity of L-carnitine in acute myocardial infarction

The physiological transport protein L-carnitine plays a role in fatty acid metabolism and energy generation in the myocardial cell. High dose L-carnitine has been postulated to have an antiarrhythmic effect and this has been demonstrated clinically (1).
20 patients with acute myocardial infarction (AMI), with onset of pain not longer than 12 hours previously, and without thrombolytic therapy, received randomly and in a double blind way 5 g L-carnitine (n=12) or placebo (n=8) at hours 0, 12, 24, 36, and 48, as well as 2 x 3 g on days 3-7 in an infusion over 2 hours.

The groups did not differ with respect to age (47-74 years), sex (15 males, 5 females), infarct site (9 anterior, 5 inferior, 6 mixed), maximal CPK and conventional (antiarrhythmic) therapy.
A 24 - hours Holter ECG was performed on days 1, 2, and 7 and showed no difference in the incidence of ventricular extrasystoles (VES) per hour in both groups. However, on the 2nd day after AMI, only 4 of the 12 carnitine-treated patients had evidence of high grade VES (LOWN IV a and IV b) compared with 7 of 8 patients in the placebo group. The difference is significant ($p<0,05$, Fischer test).

In summary, an antiarrhythmic effect of L-carnitine, which was well tolerated, was demonstrated on the 2nd day following AMI.

(1) Rizzon P. et al.: High doses of L-carnitine in acute myocardial infarction: metabolic and antiarrhythmic effects. Eur Heart J (1989) 10, 502-508.