Peer reviewed article

Interaction of food supplement L-carnitine with oral anticoagulant acenocoumarol

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Case report

A 33 year old man had a St Jude mechanical aortic valve prosthesis inserted for severe aortic valve regurgitation. He was on oral anticoagulation for one year without any further medication with stable INR values between 1.99 and 2.94 on a mean dose of acenocoumarol of 3.4 mg/d.

An unexpected rise of INR to 4.65 which was observed again despite a dose correction was the reason for a detailed questioning on food intake. There was no change of the anticoagulant dose. Apart from his normal and unchanged diet the patient reported taking a formula drink containing pure L-carnitine (Maximize®, advanced nutrition technology) an OTC product recommended to complement bodybuilding and fitness training (www.sportfitness.ch). The patient had been taking 1000 mg/d of carnitine for a period of ten weeks. The timing of carnitine intake and INR destabilisation was parallel and after the product was omitted the INR values returned to a stable range (2.4–2.8) for over 4 months.

Carnitine

Carnitine is a trimethylamine molecule that occurs naturally and plays a major role in cell energy metabolism [1]. Fatty acid oxidation is dependent on carnitine. Fatty acid usage as well as insulin regulation are determinants of fat and glucose metabolism in skeletal muscle [2]. Food typically contains one to several dozen mg carnitine per kg. Products containing carnitine are recommended not only for fitness training (www.ernaehrungsmed.de) but are beginning to be used in clinical medicine as well. There are reports on the use of carnitine for maintaining functional capacity in dialysis patients [3], in the treatment of anaemia [4] and peripheral arterial occlusive disorders [5]. Typical doses for exogenous carnitine supplementation are between 1 and several g/day.

There is one earlier report of potentiation of acenocoumarol by carnitine in the literature [6], thus confirmed by our observation 10 years later. The mechanism of interaction is still unknown. A clinical study in healthy volunteers is now clearly indicated. According to further findings it may be justified to press manufacturers of products containing carnitine to place an appropriate warning in their package inserts, as well as to spread the information among medical practitioners caring for patients on anticoagulant therapy.

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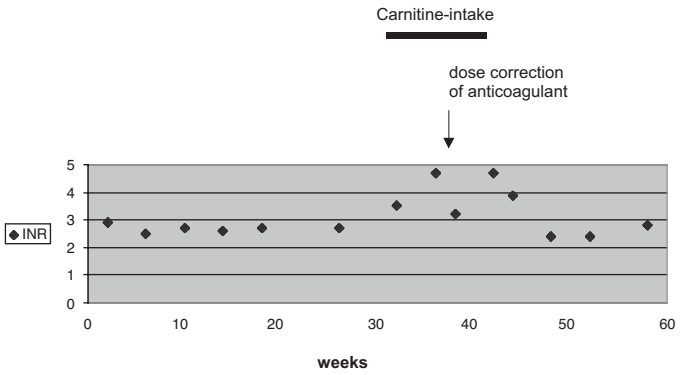
Figure 1

Timing of carnitine-intake and INR values.



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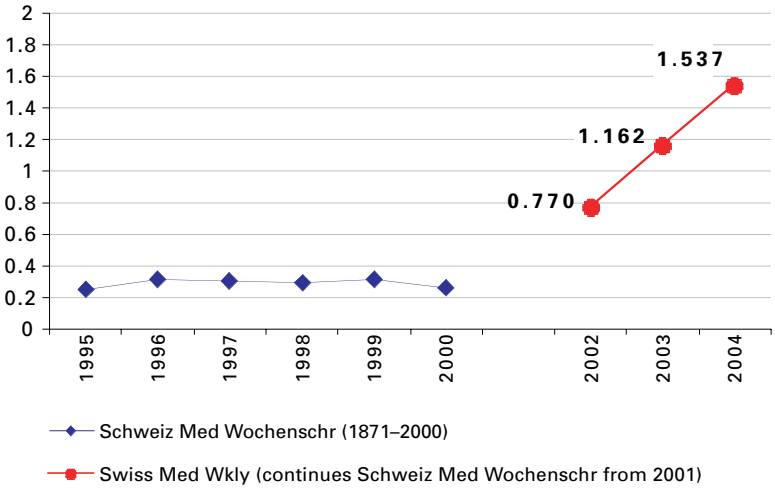

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