

SUMMARY

Effect of nitrate therapy in postmyocardial infarction patients and in animal experimental models of obesity

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Main objects of my experiments were as follows: 1) to examine the effect of 6-month transdermal nitrate treatment on the diastolic and systolic left ventricular function in humans following myocardial infarction, and 2) to examine the effects of nitrates and nitrogen oxide (NO) donors on the coronary microvessel vasodilatory response in an experimental animal model of obesity.

On the basis of my investigations, the following novel conclusions may be drawn.

Long-term nitrate treatment in humans following myocardial infarction:

- 1) significantly improved left ventricular systolic function measured by echocardiography;
- 2) significantly increased systolic vena pulmonary flow;
- 3) significantly reduced vena pulmonary diastolic flow and atrial reverse flow;
- 4) significantly reduced the level of ST-depression on 6-week's ergometry test.

According to our results, we are convinced that the appropriateness of nitrate therapy following myocardial infarction is justified (even in patients with no complaints).

In overweight animals kept on high fat diet we have found that: 5) sensitivity of coronary micro-vessels to nitrate donors and to NO was increased. 6) The increase in sensitivity was associated with the enhanced activity of vascular smooth muscle soluble guanylate cyclase.

We hypothesize, that these mechanisms might have a role in maintaining coronary microcirculation in obesity. Moreover, the increased nitrate sensitivity of coronary vessels might explain the beneficial cardiovascular effects of nitrate therapy in obesity and in other pathological conditions (however, further investigations are still required to confirm these findings).

Keywords: nitrate, left ventricular function, obesity, NO, endothel