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### Effects of thoracic epidural analgesia on early formation of coronary artery atherosclerosis in hyperlipidemic rabbits

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**Objective:** To investigate the effects of thoracic epidural analgesia (TEA) on early formation of coronary artery atherosclerosis in hyperlipidemic rabbits.

**Method:** A hyperlipidemic rabbit model was developed by feeding New Zealand male rabbits with high cholesterol diet. Twenty-nine rabbits were randomly assigned into one of three groups. Group 1: (n=8) was the regular diet control group; Group 2 (n=10) was hyperlipidemic rabbits plus TEA with saline; Group 3 (n=11) was hyperlipidemic rabbits with active TEA treatment (0.125% bupivacaine at 0.3 ml/day). All rabbits were followed for 6 weeks. Serum lipid, catecholamine level, high density lipoprotein cholesterol, coagulation time, endothelial cell damage, coronary artery atherosclerosis incidence (numbers of atheromatous arteries/total arteries) and remaining vessel ratio (damaged artery inner diameter/unaffected artery inner diameter) were compared between groups at 6 weeks.

**Result:** Group two (29.2±8.5) and group three (26.5±10.4) had significantly higher total cholesterol levels than group one (1.63±0.72). There was no significant difference in catecholamine levels or endothelial cell damage. The incidence of coronary artery atherosclerosis was significantly higher in group two (23.7%) and group three (22.2%) compared with group one (0), however, the incidence of atherosclerosis (23.7% vs. 22.2%) and remaining vessel ratio (58.9  $\mu\text{m}^2$  vs. 54.8  $\mu\text{m}^2$ ) were similar between groups two and group three.

**Discussion and conclusion:** Our prior study showed that TEA inhibited the development of coronary atherosclerosis when examined at 8 weeks in experimental cholesterol-fed rabbits; however, the results in this 6 week study showed no such effects. Although unlikely, one explanation is that TEA has no effect prior to 6 weeks on coronary atherosclerosis in hyperlipidemic rabbits.

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