



Fluvastatin does not elevate periosteal osteogenesis induced by Moloney sarcoma virus (MSV) in mice

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Abstract:

Several studies have demonstrated the pleiotropic effects of statins. Since Wang and associates reported that in rabbits lovastatin reduced steroid-induced bone loss, numerous authors have confirmed these data, however, others have reported conflicting results. In this study, the effects of fluvastatin on bone formation were investigated in early and late phase of osteogenesis. In the first set of experiments (early phase of osteogenesis) CFW/L1 mice were randomly divided into three groups. Two groups were injected with Moloney–murine sarcoma virus (Mo-MSV) into right thighs to induce orthotopic bone formation. Mice in the experimental group received fluvastatin for 11 consecutive days. Thirty days after Mo-MSV inoculation, total serum cholesterol, triglycerides, high- and low-density lipoprotein cholesterol, alkaline phosphatase (AP) were measured and bone mineral increase was calculated. In the second set of experiments (late phase of osteogenesis), fluvastatin was administered from day 11 after Mo-MSV inoculation for 20 consecutive days. Fluvastatin administration in the early phase of osteogenesis made no significant difference in average bone increase compared with mice receiving placebo. Lipid profile and AP were not significantly affected. During late phase of osteogenesis, the average increase in femoral dry mass was significantly lower in the group of mice receiving fluvastatin than in the control group. Also, Mo-MSV-initiated tumors disappeared earlier in mice treated with fluvastatin. This may be attributed to the antioncogenic potential of fluvastatin. These results also point out that orthotopic bone formation at the sites of Mo-MSV inoculation in mice seems to be a useful model to examine the pleiotropic effects of statins.

Key words:

fluvastatin, mice, periosteum, orthotopic bone formation, antitumor effect, Mo-MSV
