END-06

THE INFLUENCE OF LOVASTATIN AND CANCER GROWTH IN NUDE MICE MODEL – POTENTIAL DOUBLE-EDGED BLADE EFFECT

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BACKGROUND/AIMS:

Lovastatin and other HMG-CoA reductase inhibitors have been widely used to reduce cardiovascular morbidity and mortality. They also have effects in inhibiting cellular proliferation and induce apoptosis in various cancer cell lines. We found a potential double-edged blade role of statins in cancer growth incidentally in an animal experiment.

METHODS:

Nude mice with anaplastic thyroid cancer cell (ARO) seeding were divided into 5 groups: A－negative control group; B－positive control group; C、D、E－treatment with lovastatin 1mg/kg、5mg/kg、10mg/kg. ARO cellular culture in 0.5,1.0,2.0,4.0,5.0, and 10 μM of lovastatin to VEGF levels.

RESULT:

Tumor growth in group C was significantly faster than in group B. The tumor growth in group E and group D were less than in group B (Day 27). The VEGF were 40±12.8、59±37.0、44±12.0、50±11.3、70±7.0、and 42±12.3 pg/mL at 0.5 μM、1.0 μM、2.0 μM、4.0 μM、5.0 μM、and 10.0 μM, respectively. It revealed biphasic change.

DISCUSSION/CONCLUSIONS:

It is surprising and interesting to find an increase in cancer growth at low doses of lovastatin and a decrease in cancer growth at high concentration of lovastatin. The biphasic changes of VEGF from lovastatin-treated ARO cells may hint at a potential double-edged blade effects of statins. Although many previous studies suggest the safety of various statins, we should pay more attention to clarify this possible classical phenomenon.

Keyword: Lovastatin, Cancer, double-edged blade effect