THREE-DIMENSIONAL CHANGES IN LYMPHATIC ARCHITECTURE AROUND VX2 TONGUE CANCER
– DYNAMIC CHANGES AFTER ADMINISTRATION OF ANTIANGIOGENIC AGENT

S. Seki, A. Fujimura

First Department of Oral and Maxillofacial Surgery (SS), First Department of Oral Anatomy (AF), School of Dentistry, Iwate Medical University, Morioka, Japan

ABSTRACT

We examined the three-dimensional changes of the lymphatic architecture in the rabbit VX2 tongue cancer model after administration of an antiangiogenic agent, TNP-470. TNP-470 at 30 mg/kg was administered via the auricular vein to the rabbit four times every other day from 3 days after transplantation of the tumor. The tongue and both sides of deep cervical lymph nodes of rabbit were observed at 10 days after transplantation. Lymph node metastasis was confirmed histopathologically. Morphological changes of collecting lymphatic vessels and lymphatic capillaries were observed, and the number and diameter of lymphatic vessels within 500 µm around the tumor were measured using the combined method with 5'-nucleotidase staining and three-dimensional reconstruction imaging.

Tumor growth and lymph node metastasis were suppressed by administration of TNP-470. In the TNP-treatment group, the mean number of lymphatic capillaries was significantly fewer than in the control group. The mean diameter of collecting lymphatic vessels was significantly smaller than in the control group.

In conclusion, our results suggest that cancer cell invasion into the lymphatics is probably decreased by inhibiting not only the growth of tumor but also new formation of lymphatic capillaries around the tumor by administration of TNP-470.