

Lip cancer is the second most common type of oral cancer. Sun exposure and tobacco habits are the most important aethiologic factors. It normally affects men over the age of 50 and in 95% of the cases the majority of the tumours are located in the lower lip. In northern Portugal in 2004, 67 new cases of lip cancer and an incidence rate of 1.6 persons per 100.000 habitants were recorded. When diagnosed, 7% of well differentiated tumours present node metastasis, rising to 23% in undifferentiated tumours. The presence of node metastasis decreases survival in 50%. Other influencing factors on prognosis are the presence of vascular and lymphatic invasion and the perineural invasion.

Angiogenesis is essential for metastasis. Conversely, tumoral lymphangiogenesis is not fully characterized, especially in relation to its trigger mechanism and to the role of lymphatic invasion in malignant progression. However, lymph node metastasis is a key factor in prognosis and therapeutic decision. The aim of the current study was to clarify the clinic and prognostic significance of lymphangiogenesis and angiogenesis in lip squamous cell carcinoma, and the involvement of lymphatic and/or blood vessels in malignant dissemination.

Our study assessed the clinico-pathological features with prognostic value in lip cancer (n=73) as well as the blood and lymphatic vessel density on the intra and peritumoral areas. Tissue sections were immunostained with specific antibodies, anti-CD34 and D2-40, and the blood and lymphatic vessel density, respectively, were assessed by two counting methods (Weidner and Chalkley).

Stage III, perineural invasion and tumours localized on the lip commissure revealed as prognostic factors as they were associated with a significantly lower overall and disease-free survivals. Total blood vessel density, intra or peritumoral, had no prognostic value on the univariate analysis. Consequently, angiogenesis is the result of biological steps with different meanings and does not necessarily translate on prognosis. Lymphangiogenesis, although present on lip cancer, did not show prognostic value. This biological process appears to be an early event associated with tumour homeostasis that prevents interstitial pressure from jeopardizing the survival of cancer cells by providing draining mechanisms able to prevent critical interstitial pressures.

Both angiogenesis and lymphangiogenesis are biological processes that may represent useful therapeutic targets on the treatment of patients