Influence of tumor volume on survival in patients with oral squamous cell carcinoma.

The TNM classification is used to assess cancers of the oral cavity, and advancements in imaging techniques have revealed clear variations in tumor volume at presentation. This study therefore aimed to clarify whether preoperative imaging, with exact measurements of the tumor, could affect post-surgery survival after controlling for demographic, clinical, and tumor characteristics. We included 437 patients with histologically confirmed, stage T1-4, N1-3, M0, invasive squamous cell carcinoma of the tongue. Participants were assessed for recurrence every 3 months for the first 2 years, every 6 months for another 2 years, and annually thereafter; routine computed tomography was performed annually. Associations were determined using the Kaplan-Meier estimator, univariate log-rank test, and Cox proportional hazards regression models. The mean survival of all patients was 68.1 ± 48.2 months. The 2- and 5-year overall survival rates were 82.2 and 66.7 %, respectively. The mean primary tumor volume was 7.14 cm(3) with a range of 1.3-24.21 cm(3). The ROC curve and Youden Index analysis revealed that the optimal cutoff volume was between <=5.9 and <=18.3 cm(3) for three different volume groups (p < 0.0001). Large tumor volume was associated with a significantly poorer overall survival (p < 0.0001). Tumor volume was
significantly associated with the overall survival of patients. This has both prognostic and reconstructive implications that will affect health-related quality of life. In addition, this will inform surgical planning and the allocation of resources.

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