Total Lesion Glycolysis: A Possible New Prognostic Parameter In Oral Cavity Squamous Cell Carcinoma

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Introduction:

The calculation of metabolic tumor volume (MTV) may overcome this issue and allow calculation of metabolic tumor burden by multiplying the SUV within this volume, a term known as total lesion glycolysis. **Patients and Methods:**

A prospective study of 126 patients with OSCC underwent PET/CT before their definitive treatment by radical surgery. MTV was calculated for the primary tumor according to absolute SUV 3. TLG was calculated as MTV x SUV. Patients were followed up till death or at least 24 months from their surgery with calculation of disease free (DFS) and disease-specific survivals (DSS). **Results:** Patient with high TLG had 3-year DFS of 52% vs. 74% for patient with low TLG (P = 0.007), the 3-year-DSS were 53% vs. 84%, respectively (P < 0.001). Similarly, patient with high nodal SUV (NSUV) had 3-year DFS of 42% vs. 70% for patient with low NSUV (P = 0.001), the 3-year-DSS were 39% vs. 78%, respectively (P < 0.001). In multivariate analyses, TTLG, NSUV and pathological nodal status were independent prognostic parameters for 3 year DSS. Patients having positive neck nodes with high NSUV and high TTLG (score 3) were identified as having 32 times the risk of cancer death compared to patients lacking those factors (3-year-DSS = 13% vs. 94%, P < 0.001; hazard ratio [HR] = 32).

Conclusion:

Primary tumor TLG is independent prognostic factor for cancer control and survival in patients with OSCC. A prognostic scoring system that includes primary tumor TLG, nodal SUV and pathological neck status could define risk groups in OSCC.