**tumour biology and pathology**

1631P  PROGNOSTIC VALUE OF TOTAL LESION GLYCOLYSIS AND METABOLIC TUMOR VOLUME IN NON-SMALL CELL LUNG CANCER

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**Aim:** To predict the outcome of patients with NSCLC the currently used prognostic system (TNM) is not accurate enough. The prognostic significance of SUV measured by PET remains controversial. This retrospective study aims to evaluate the prognostic value in overall survival (OS) and progression free survival (PFS) of the standard uptake value (SUV), total lesion glycolysis (TLG) and the metabolic volume (MTV) in primary NSCLC.

**Methods:** This study investigates 86 patients (58 male, 28 female) with a new diagnosis of NSCLC (TNM stage I: 24.4%, II: 9.3%, III: 38.4% and IV: 27.9%) who underwent PET/CT. For VOI definition a semi-automatic delineation tool was used. On PET images SUVmax, SUVmean and MTV of the primary tumors were measured. PET parameters were corrected for lean body mass and glycemia. TLG was defined as SUVmean*MTV. TLG50 was calculated by using a threshold of 50% of the SUVmax. SUV index was calculated as the ratio of tumor SUVmax to liver SUVmean to improve reproducibility and to lower the influence of patient and scanner related factors.

**Results:** Median follow up was 17 months. Pre-therapy median MTV, TLG50 and SUVmax were 10.37 ± 47.01 ml, 52.49 ± 239.33ml and 7.67 ± 5.55 respectively. OS and PFS were significantly higher in patients with values below the median values of MTV, TLG50 and SUVmax. Univariate analysis revealed gender (HR 0.3 95%CI 0.14-0.65 for OS and HR 0.33 95%CI 0.17-0.64 for PFS) and stage (HR 2.22 95%CI 1.58-3.11 for OS and HR 2.0 95%CI 1.5-2.68 for PFS) as additional prognostic factors. Multivariate analysis revealed that TLG50 (HR 2.15 95%CI 1.41-4.04), stage (HR 2.16 95%CI 1.52-3.06) and gender (HR 0.32 95%CI 0.15-0.70) were independent prognostic factors for OS. The same parameters were significant for PFS: TLG50 (HR 2.08 95%CI 1.15-3.73), stage (HR 2.1 95%CI 1.54-2.86) and gender (HR 0.28 95%CI 0.14-0.55). MTV and SUV index were not found to be significant in our multivariate model.

**Conclusions:** Our study indicates that TLG50 of the primary tumor is an independent prognostic factor in patients with NSCLC. Further stratification of patients with the same TNM stage by TLG50 may improve outcome. Prospective studies and validation are needed for determination of the optimal cutoff value before transferring results into clinical practice.

**Disclosure:** All authors have declared no conflicts of interest.