Improved non-invasive T-Staging in non-small cell lung cancer by integrated 18F-FDG PET/CT.

AIM: In this prospective study, reliability of integrated (18)F-FDG PET/CT for staging of NSCLC was evaluated and compared to MDCT or PET alone. PATIENTS, METHODS: 240 patients (pts) with suspected NSCLC were examined using PET/CT. Of those patients 112 underwent surgery comprising 80 patients with NSCLC (T1 n = 26, T2 n = 37, T3 n = 11, T4 n = 6). Imaging modalities were evaluated independently. RESULTS: MDCT, PET and PET/CT diagnosed the correct T-stage in 40/80 pts (50%; CI: 0.39-0.61), 40/80 pts (50%; CI: 0.39-0.61) and 51/80 pts (64%; CI: 0.52-0.74), respectively, whereas equivocal T-stage was found in 15/80 pts (19%; CI: 0.11-0.19), 12/80 pts (15%; CI: 0.08-0.25) and 4/80 pts (5%; CI: 0.01-0.12), respectively. With PET/CT, T-stage was more frequently correct compared to MDCT (p = 0.003) or PET (p = 0.019). Pooling stages T1/T2, T-stage was correctly diagnosed with MDCT, PET and PET/CT in 54/80 pts (68%; CI: 0.56-0.78), 56/80 pts (70%; CI: 0.59-0.80) and 65/80 pts (81%; CI: 0.71-0.89). T3 stage was most difficult to diagnose. T3 tumors were correctly diagnosed with MDCT in 2/11 pts (18%; CI: 0.02-0.52) versus 0/11 pts (0%; CI: 0.00-0.28) with PET and 5/11 pts (45%; CI: 0.17-0.77) with PET/CT. In all imaging modalities, there were no equivocal findings for T4 tumors.
Of these, MDCT found the correct tumor stage in 4/6 pts (67%; CI: 0.22-0.95), PET in 3/6 pts (50%; CI: 0.12-0.88) and PET/CT in 5/6 pts (83%; CI: 0.36-0.99). CONCLUSION: Integrated PET/CT was significantly more accurate for T-staging of NSCLC compared to MDCT or PET alone. The advantages of PET/CT are especially pronounced combining T1- and T2-stage as well as in advanced tumors.