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Session A. Breast cancer

A20 FDG-PET/CT as a predictor of pathological complete response (pCR) in breast cancer (BC) patients (pts) treated with neoadjuvant chemotherapy (NAC): a single center retrospective study

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Background: FDG-PET/CT represents a promising method to assess response to NAC in BC. We conducted a retrospective study in BC pts receiving NAC to investigate: the correlation of clinical and pathological characteristics with baseline tumor SUVmax; the correlation of metabolic response assessed by FDG-PET/CT with pathologic complete response (pCR).

Patients and methods: From 2010 to 2014, 59 stage II-III BC pts were treated at our institution with anthacycline and/or taxane based NAC, also with trastuzumab if HER2 +. Pts underwent FDG-PET/CT at baseline and after NAC completion. The metabolic response (ΔSUV) was defined as follows: [(tumor SUVmax after NAC – tumor SUVmax before NAC) / tumor SUVmax before NAC]. Pathologic response was evaluated by Pinder score; pCR was defined as absence of invasive cancer in the primary tumor. The association between continuous variables was investigated using Spearman's Rho correlation analysis. The comparison between median ΔSUV and pathologic response was analyzed using Mann-Whitney test.

Results: Among the 59 pts, we observed 15 pCR (13 with no residual BC, 2 with residual in situ BC), 10 partial response (PR) with ≤ 10% residual invasive BC and 34 PR with >10% residual invasive BC. At baseline, median Ki67 in the whole population was 30% (3%-70%), and Ki67 was directly correlated with baseline SUVmax (Rho = 0.51; $p < 0.0001$). Median ΔSUV (mΔSUV) was -82% in pts with no residual BC, -24% in pts with residual in situ BC, -82% in pts with ≤ 10% residual invasive BC and -36.5% in pts with >10% residual invasive BC. mΔSUV was significantly different among pts who achieved pCR compared with no pCR (-82% vs -48%, $p = 0.01$).

Conclusions: In our study, SUVmax of BC before NAC was positively correlated with Ki67. mΔSUV was significantly different among pts who achieved pCR compared with no pCR. FDG-PET/CT represents an interesting tool for assessment of response to NAC.