114P Circulating and tumor-associated caspase-4: A novel diagnostic and prognostic biomarker for non-small cell lung cancer patients?

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Background: Late diagnosis limits therapeutic options and survival rate of non-small cell lung cancer (NSCLC) patients. Therefore, the identification of biomarkers represents an emerging medical need.

Methods: A highly sensitive and specific ELISA test was developed to identify/quantify a novel/selective diagnostic biomarker for NSCLC patients, caspase-4, which was detected into the plasma and tissues of NSCLC patients. This test was validated by using plasma from 125 NSCLC patients and 79 healthy (non-pathological) subjects. Caspase-4 quantification was also assessed in the lung tumor mass of 98 paired-matched NSCLC patients compared to 10 non-tumor lung tissues (i.e. tuberculosis).

Results: Circulating caspase-4 was detected in both healthy and NSCLC patients; however, at different range values: 2.603-3.372 ng/ml for NSCLC patients (95% CI) compared to 0.3994-0.6219 ng/ml for healthy subjects (95% CI). The sensitivity of the test ranged from 97.07% to 100%; the specificity was 88.1% with a positive predictive value of 92.54%, accuracy of 95.19% and AUC of 0.971. Tissue levels of caspase-4 in the tumor mass showed that 72 (72.7%) out of 99 patients were positive. More importantly, higher levels (cut-off value= 0.307 ng/ml) of caspase-4 in the tumor mass were associated to reduced overall survival (median 0.92 years) compared to NSCLC patients with lower levels (median 3.02 years).

Conclusions: We report for the first time caspase-4 as a novel diagnostic and prognostic biomarker, opening new therapeutic perspectives for NSCLC patients.

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