Prognostic markers of surgical treatment of malignant lung tumours

Summary:

Introduction: Lung cancer is the most common malignancy in adults in western countries. The ideal strategy of treatment depends on early diagnosis because the clinical stage strongly impacts the prognosis. Among conventional diagnostic methods, we can analyse immunochemical markers to make the diagnosis more precise.

Aim: None of the biomarkers has been evaluated sufficiently specific for one type of tumour. In our work, we tried to find a panel of immunochemical markers, which could be useful as well for the assessment of prognosis as for diagnosis. Especially in situations when taking a biopsy is impossible. The next aim of our study was to evaluate the context between clinical-pathological factors and the level of immunochemical markers and their influence on prognosis.

Methods: In our study, we classified 109 patients with lung carcinoma. In the control group were also 109 persons. All 109 patients with NSCLC underwent lung resection at the Department of Surgery of University hospital in Pilsen between 17th April 2018 and 26th August 2020. Blood samples were realized on the day of operation, one week after the operation and then on day 90 and day 365. Serum level of CEA, NSE, CYFRA 21-1, MonoTotal, IGF-1, proGRP and TPS were measured in each blood sample. Statistical analysis was carried out in the context of clinical-pathologic factors and prognosis of patients.

Results: The serum level of each immunochemical marker except TPS was statistically significantly higher in the experimental group than in the control group. ROC curves were created for each marker in the univariate analysis. ROC curves of each marker except TPS showed statistical significance. Markers CYFRA 21-1, CEA and IGF-1 were included in the multivariate model. This model provided AUC=0.7730. We ascertained that serum level of CYFRA 21-1 and MonoTotal were statistically significantly increased by clinical-stage and the size of the tumour. We found the statical significance of the increasing level of NSE according to overall survival and level of CYFRA 21-1 and CEA to progression-free survival. Epidermoid carcinoma related to a statistically significantly higher level of CYFRA 21-1. On the contrary, lung adenocarcinoma showed a statistically significantly higher level of CEA. We did not prove the relation between immunochemical markers and nodal status in our study.

Conclusion: In our study, we proved the array of three immunochemical markers (CYFRA 21-1, CEA, IGF-1) of which the ROC curve provided AUC=0.7730. The dependency of the immunochemical markers on clinical-pathological factors conformed with data in the literature. Out of keeping with the available literature, we did not prove any dependency between the level of immunochemical markers and nodal status only.