L-SELECTIN AND P-SELECTIN IN LUNG CANCER PATIENTS WITH NEUROLOGICAL PARANEOPLASTIC SYNDROMES

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Background: Cell-surface molecules expressed on leukocytes (L-selectin) and platelets (P-selectin) mediate host-tumor interactions. L-Selectin plays a role in antitumor immune responses and its levels have also been found increased in neurological autoimmune disorders like multiple sclerosis. P-Selectin is involved in metastasis and inflammatory diseases. Neurological paraneoplastic syndomes (NPS) are results of indirect effect of systemic malignancy and lung cancer is diagnosed most frequently among their causes. The pathomechanisms leading to NPS await elucidation. With this background in mind we have undertaken the evaluation of serum L- and P-selectin in lung cancer patients in the context of NPS. **Material and methods:** The study included 68 patients (45 males, 23 females) hospitalized in Neurological Clinic with NPS diagnosis and Department of *Pulmonology,* Allergology and Respiratory Oncology Poznan University of Medical Science with the diagnosis of lung cancer. Definite diagnosis of NPS was based on Graus criteria. Typical NPS were considered when the patients manifested symptoms of subacute sensory neuropathy, paraneoplastic cerebellar degeneration, limbic encephalitis, opsoclonus/myoclonus, Lambert-Eaton syndrome. Other neurological deficits were classified as non-typical. The serum of each patient was tested for the presence of onconeural antibodies by means of indirect immunofluorescence as a screening and Western blotting as confirmation test. The tested well-defined onconeural antibodies included anti-Hu, anti-Ri, anti-Yo, anti-amphiphysin, anti-CV2, anti-Ma/Ta. Serum L-Selectin and P-Selectin were evaluated by means of ELISA. **Results:** Neurological deficit was found in 21 lung cancer patients (31%). Typical NPS included subacute sensory neuropathy and paraneoplastic cerebellar degeneration. Well defined onconeural antibodies detected in lung cancer patients included anti-Hu, anti-Ri, anti-amphiphysin, anti-Ma/Ta. Lung cancer patients with NPS symptoms had higher L-Selectin concentrations (844 ± 319 ng/mL) than asymptomatic cases (837 ± 198 ng/mL; mean ± SD; P= 0.042). P-Selectin levels were not significantly different between studied subgroups, however the trend (P=0.0575) for lowered concentration in NPS subjects was noticed (95; 62- 159 ng/mL; median, interquartile range), when compared to asymptomatic group (158; 80-243 ng/mL). L-Selectin was higher (P=0.012) in patients with non-typical NPS (921 ± 392 ng/mL) comparing to asymptomatic cases (837 ±198 ng/mL). Logistic regression analysis in the model including the effects of L-Selectin, P-Selectin, age and sex on the presence of well-defined onconeural antibodies showed L-Selectin as an independent factor (P=0.0313), and when the influence on neurological deficit was analyzed - P-Selectin was independent factor (0.0481). **Conclusion:** L-Selectin up-regulation is involved in immune-mediated NPS associated with the presence of well-defined onconeural antibodies and particularly non-typical manifestation.