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Analysis of the onset of Ischemic Stroke and an atmospheric parameter (anomalous Equivalent Potential Temperature – EPT)

Introduction: Among the risk factors of stroke meteorological conditions are present. They are forecastable and have practical importance in the acute care. Previously we demonstrated a meteorological parameter, the equivalent potential temperature (EPT), anomalous value of which (aEPT) indicates an unfavourable effect on acute ischemic stroke (AIS) outcome. As compare ischemic stroke and myocardial infarction, we found different behaviour of these two disorders. The EPT characterizes air masses from different regions, a significant deviation from the 30-year average is the anomalous period or day (AD). In present work aEPT was compared to the onset of AIS. The indicator for AIS was the number of thrombolysis (TT). The narrow time window of TT enables the precise determination of the disease onset. Patients and method: We compared the number of TTs and aEPT periods in Budapest region during 01.12.2014-28.02.2015 (the period was chosen to have possibility of comparison with previous data). Because of the atmospheric conditions of the Carpathian Basin we analyzed the winter months. Patients' data were analyzed anonymously. The daily numbers of TTs were provided by the National Institute of Health Insurance Fund Management. Statistics were done by Student's t-test.

Results: Of the 90 days 32 were ADs. The number of TTs was 243, 69 (28.4%) of it were performed on ADs. The average number of TTs was 2.16 on ADs and 3.00 on non-ADs. TT rate was 1.86 during positive, 2.8 during negative aEPTs periods. There was no statistically significant difference (p=0,3684) between ADs and non-ADs.

Conclusion: we did not find an increase (but rather a decrease) in AIS during aEPT periods. This apparently contradicts the relationship between the aEPT value and the fatal outcome of stroke. The reason may be that patients treated with TT are not among the most serious cases, which increase the mortality rate.

Speaker Biography

Andras Folyovich graduated at the Medical Faculty of Semmelweis University, and trained at the Department of Neurology of the same university. He obtained Board Certification in Neurology in 1983, in Psychiatry in 1993 and in Vascular Neurology in 2015. His PhD dissertation dealt with socio-economical aspects of stroke. He has been a pioneer in widening medical enteral nutrition of acute stroke patients in Hungary. He is the editorial board member of Clinical Neuroscience/Ideggyógyászati Szemle and Journal of Hungarian General Practitioners. Membership of scientific societies: Hungarian Neurological Society, Hungarian Stroke Society, Hungarian Medical Nutrition Society, Hungarian Meteorological Society. He is the medical director of Hungarian National Stroke Prevention and Rehabilitation League.

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