

Assessment of the Association between Serum Thrombospondin-1 Levels at the Time of Admission and the Severity of Neurological Deficit in Patients with Ischemic Stroke

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Abstract : Introduction: Despite improvements in stroke management, it remains the leading cause of disability worldwide. It has been suggested that enhancing brain angiogenesis after stroke will improve stroke outcome. Promoting post stroke angiogenesis requires the upregulation of angiogenic factors with a simultaneous reduction of anti-angiogenic factors. Thrombospondin-1 is the main anti-angiogenic protein in the living cells. Counterintuitively, it has been shown that animals with Thrombospondin-1 knockdown will have better stroke outcome. Data about the clinical significance of Thrombospondin-1 levels at the time of admission is still lacking. The objective of this work is to assess the association between serum Thrombospondin-1 levels measured at the time of admission and baseline neurologic severity after stroke. Patients and Methods: Blood samples were collected from patients admitted to the King Abdullah University Hospital (KAUH) with ischemic stroke at the time of admission and serum Thrombospondin-1 levels were measured using ELISA. Patients neurologic severity was evaluated using the National Institute of Health Stroke Scale (NIHSS). Results: Samples from 50 patients admitted between January 2016 and December 2016 were collected. The median age of participants was 68 years and the median NIHSS was 3. Multinomial regression identified serum Thrombospondin-1 as an independent predictor of stroke outcome ($p=0.003$). Baseline serum Thrombospondin-1 was negatively associated with NIHSS at the time of admission (spearman rho correlation coefficient=0.272, $p=0.032$). Conclusion: Serum Thrombospondin-1 at the time of admission may be a useful marker of stroke severity that predicts more severe neurologic severity.

Keywords : thrombospondin, stroke, neuroprotection, biomarkers

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