

Background: Serum concentrations of adhesion molecules may be connected to the pathogenesis of secondary brain injury after spontaneous intracerebral hemorrhage (ICH). This study posits the hypothesis that levels of adhesion molecules substantially increase after ICH and are decreased thereafter, and that they can predict treatment outcomes.

Methods: Our study was conducted as a prospective study on 25 patients with acute spontaneous ICH presenting to ER of EL Sahel teaching hospital over a period of 19 months (May 2012 to November 2013) confirmed by patient history and brain CT scan, who were investigated with serial serum levels of adhesion molecules (sICAM) during their hospital stay compared to levels in control group. The studied population was divided into two groups; group 1(25 patients) with acute ICH and group 2(25) young volunteers. The case group was divided as regards the outcome into two subgroups; bad outcome and good outcome by using the modified Rankin Disability Scale (mMRS).

Results: This prospective study was conducted on 25 patients with acute spontaneous intracerebral hemorrhage. Upon discharge, the therapeutic outcomes based on the modified Rankin Disability Scale (mMRS) showed that 15 had bad outcome and 10 had good outcome. Statistical analysis of adhesion molecules between patient groups with good outcome and poor outcome revealed significant differences in hypertension ($P=0.009$), ICH volume and intraventricular hemorrhage on admission ($P=0.0001$ and 0.051 , respectively), GCS on admission ($P=0.0001$), and sICAM levels on admission ($P=0.009$). Cutoff point for the studied population for sICAM level on admission at 455 ng/ml predicted poor outcome with sensitivity 73% and specificity 80%, also at 680 ng/ml predicted clinical seizures at sensitivity 100% and specificity 81%, moreover at 505 ng/ml predicted non survivors with sensitivity 89% and specificity 88%.

Conclusion: Persistent increase in sICAM level implies a danger of poor therapeutic outcome for the treatment of spontaneous ICH during hospitalization. ICAM level in serum correlates positively with age, ICH volume and the duration of ICU and hospital stay. Cutoff point for the studied population for sICAM level on admission at 455 ng/ml predicted poor outcome with sensitivity 73% and specificity 80%. These findings are important because they offer a potential therapeutic target for patients with spontaneous ICH.

Key words: ICAM – Modified Rankin Disability Scale –GCS – intraventricular Hemorrhage.