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Effect of early endothelial cell damage markers on surgical and conservative treatment outcome for isolated severe traumatic brain injury patient management

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Abstract

Our aim was to compare the effect of glycocalyx and endothelial injury and coagulation status between isolated sTBI patients undergoing surgical and conservative treatment and its association with mortality. The study was performed on 120 isolated sTBI patients. Syndecan-1, thrombomodulin, TFPI, thrombin activity [thrombinantithrombin complexes (TAT) and soluble fibrin monomer (sFM)] and degree of plasmin generation [tissue type plasminogen activator (tPA) and plasminogen activator inhibitor (PAI-1)] was estimated in samples taken in the emergency department prior to any intervention (<12 hours of injury). The mean age of the patients was 35.4±12.6 years (18-65), 88.3% of the patients were male and 80% were aged <50 years. Computed tomography revealed SDH in 45% and SAH in 35.0% patients. 40%(48) patients underwent surgery with mean operation time of 3.3 hours. Although our results indicate significant degree of endothelial dysfunction and hypercoagulation in isolated sTBI patients undergoing surgery relative to conservative treatment, mortality rate observed between the two groups was statistically comparable. Endothelial damage was an independent predictor and presents a five times higher risk of mortality in conservatively treated patients. Adjunct to clinical indications, syndecan-1 may be useful in informing clinicians at an early stage about which patients will benefit from surgery or intervention.

Biography

Venencia Albert recently completed her PhD in Laboratory Medicine from All India Institute of Medical Sciences, India. Her doctoral work was based on the interactions between the coagulation system, vascular endothelium, inflammation in severe brain injury cases. Later she moved to study platelet activation and dysfunction with neurocognitive decline and impaired recovery in mild brain injury patients. She is currently working in scientific publishing in the Indian Journal of Medical Journal run by Indian Council of Medical Research. She intends to continue working in novel surrogate blood biomarkers to help reduce costs of diagnosis in TBI cases and elevate standard of care.

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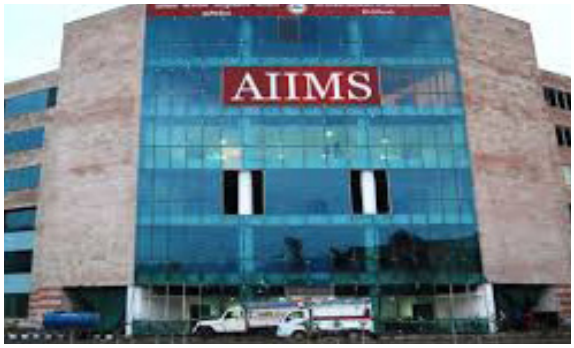

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