

ICP Waveform Analysis

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Besides mean ICP value, the ICP derived parameters such as ICP waveform, amplitude of pulse (AMP), the correlation of ICP amplitude and ICP mean (RAP), pressure reactivity index (PRx), ICP-ABP wave amplitude correlation (IAAC) may reflect the status of intracerebral circulation, cerebrospinal compensatory reserve and brain compliance. An automatic data collecting and storing device can record multiple parameters such as ICP waveform, PRx, RAP and IAAC. All of these are critical for the analysis of current clinical status and for the prediction of prognosis. Fifty patients with TBI were monitored and their daily ICP waveform data was collected and stored. 18 patients showed spindle wave and were assigned to the test group, while 32 patients in control group did not show spindle wave. The patients with spindle wave tended to have a greater proportion of GOS 4-5 (61%) compared to control group (31%). Furthermore, mean ICP, pulse amplitude of ICP (AMP), regression of amplitude and pressure coefficient (RAP) also showed significant improvement. Spindle wave in ICP waveform appears to be associated with a good outcome in traumatic brain injury patients. The relationship between outcome and intracranial pressure derived parameters in traumatic brain injury patients was also revealed. The TBI patients were divided into the poor outcome group (GOS 1-2, n=20) and the good outcome group (GOS 3-5, n=30) The results show that compared with the good outcome group, patients in the poor outcome group tended to have higher ICP, lower CPP, larger pressure reactivity index, PRx, and larger IAAC.