Intracranial pressure monitoring indications

Intracranial pressure (ICP) monitoring is indicated in a wide range of neurological diseases. However, apart from major trauma and academic neurosurgical centres, it is not commonly part of the clinical management of patients. This scenario is mainly attributed to the invasiveness of the current methods (which require insertion of a catheter into the brain) and their associated risks (infections, brain parenchyma damage and haemorrhages). Such characteristics limit ICP monitoring in several clinical conditions in which ICP would be important: patients with haemorrhagic or ischaemic stroke, mild to moderate traumatic brain injury (TBI), altered mental status or cognitive/psychological disorders, brain tumours and hydrocephalus [1) 2) 3)].

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 and arterial blood pressure (ABP) wave amplitude correlation (IAAC), and so on, can reflect intracranial status, predict prognosis, and can also be used as guidance of proper treatment. However, most of the clinicians focus only on the mean ICP value while ignoring these parameters because of the limitations of the current devices. We have recently developed a multimodality monitoring system to address these drawbacks. This portable, user-friendly system will use a data collecting and storing device to continuously acquire patients' physiological parameters first, i.e., ABP, ICP, and oxygen saturation, and then analyze these physiological parameters. We hope that the multimodality monitoring system will be accepted as a key measure to monitor physiological parameters, to analyze the current clinical status, and to predict the prognosis of the neurosurgical critical patients [4)].

With traumatic intracranial mass (EDH, SDH, depressed skull fracture…)

a) a physician may choose to monitor ICP in some of these patients

b) post-op, subsequent to removal of the mass

Intracranial pressure monitoring for severe traumatic brain injury

see Intracranial pressure monitoring for severe traumatic brain injury.

Intracranial pressure monitoring for aneurysmal subarachnoid hemorrhage

see Intracranial pressure monitoring for aneurysmal subarachnoid hemorrhage.

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