

## RINGKASAN

Peningkatan tekanan intrakranial (TIK) adalah kegawatan pada sistem neurologis yang dapat menyebabkan kematian, akibat keganasan di otak, cedera kepala tertutup, gangguan aliran liquor cerebro spinal (LCS), sumbatan pada sinus venosus utama dan idiopatik. Berbagai penelitian menunjukkan bahwa monitoring TIK dapat meningkatkan kualitas dan kelangsungan hidup pasien-pasien yang mengalami peningkatan TIK. Metode pengukuran TIK non invasif seperti pengukuran optical nerve sheath diameter (ONSD) jarang dilakukan di Indonesia meskipun memiliki nilai manfaat yang besar bagi penatalaksanaan pasien di ICU. Kami laporkan 4 kasus ICU di RSUD Dr Moewardi, Solo, Jawa Tengah: laki-laki, 54 tahun dengan cedera kepala berat (CKB), ICH regio temporal dan edema cerebri, mendapatkan terapi konservatif; wanita 52 tahun, dengan CKB, SDH regio frontotemporo parietal, ICH regio temporo parietal dekstra dan edema cerebri; wanita 44 tahun mengalami cedera kepala akibat kecelakaan lalulintas dengan EDH regio parieto temporal dextra, closed fracture clavícula dextra dan dilakukan craniotomy evakuasi EDH; laki-laki 45 tahun dengan stroke hemoragik,dekstra, patah tulang tertutup, klavikula kanan dan dilakukan evakuasi EDH pasca operasi ICH. Pada keempat pasien diatas kami lakukan pengukuran ONSD pada kedua bola mata dengan hasil yang berbeda-beda. ONSD > 5 mm kami anggap pasien mengalami peningkatan TIK, TIK > 20 mmHg, dan terapi di ICU disesuaikan dengan hasil ini untuk menurunkan TIK nya.

Ini adalah laporan pertama di unit perawatan intensif kami berkenaan dengan metode pengukuran TIK non invasif. Diperlukan penelitian prospektif mengenai akurasi hasil antara pemeriksa, dan kegunaannya pada fase awal pasien trauma kepala (di ruang resusitasi) atau pasien yang beresiko mengalami peningkatan TIK.

**Kata Kunci:** cedera otak, monitoring TIK, optical nerve sheath diameter (ONSD)

**ABSTRACT**

*An increase in intracranial pressure (ICP) is an emergency in the neurological system and can cause death, this may be caused by brain malignancy, closed head injury, disruption of cerebro spinal fluid flow (CSF), blockage of the main and idiopathic venous sinus. Various studies have shown that monitoring ICP can improve the quality and survival of patients who experience increased ICP. Non-invasive methods of measuring ICP (ONSD) are still rare in Indonesia although they have a great benefit for the management of patients in the ICU.*

*We report a case series from the ICU of Dr Moewardi General Hospital, Central Java. The first patient male 54 years old, with severe head injury, temporal regional intra cranial hemorrhage (ICH) and cerebral edema receiving conservative therapy. The second patient female 52 years old, with severe head injury, frontotemporo parietal region subdural hemorrhage (SDH), right temporo parietal region ICH and cerebral edema. The third patient female 44 years old, suffered head injury caused by traffic accident, right temporo parietal region Extra Dural Hemorrhage (EDH), closed fracture in right clavicle, and underwent EDH evacuation craniotomy. The fourth patient male 45 years old, with hemorrhagic stroke and underwent craniotomy evacuation for ICH. We performed optical nerve sheath diameter (ONSD) measurements on both eyeballs of those patients. We assumed  $ONSD > 5$  mm as increased ICP ( $>20$ mmHg) and the therapy in ICU was adjusted to the result of the measurement.*

*Optic nerve sheath diameter measurement is a good non invasive procedure to measure ICP in ICU setting. However further study is needed regarding the outcome accuracy among examiners and it's benefit in the early phase head trauma in patients admitted to resuscitation room or who are at risk of developing ICP.*

**Keywords:** *brain injury, ICP monitoring, optical nerve sheath diameter*