

MONITORING END TIDAL CO₂ DENGAN HIPERVENTILASI INTRA OPERASI PADA PASIEN INTRACEREBRAL HEMORRHAGE (ICH) UNTUK MENGATASI RESIKO KOMPLIKASI PENINGKATAN TEKANAN INTRA KRANIAL

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ABSTRAK

Latar Belakang: Intracerebral adalah kondisi darurat ketika pembuluh darah yang pecah menyebabkan pendarahan di dalam otak. Peningkatan volume darah otak akibat hiperkapnia mungkin mempunyai efek buruk pada Intrakranial Pressure pada pasien dengan cedera otak akut. Dalam bedah saraf, hipokapnia umumnya dicapai melalui hiperventilasi ketika diperkirakan terjadi peningkatan Intrakranial Pressure yang menyebabkan salah satu masalah kesehatan anestesi. Penelitian sebelumnya terutama berfokus pada pengaruh hipokapnia terhadap perlindungan saraf, tetapi efek ini tidak dapat dipertahankan dan hipokapnia yang berkelanjutan dapat meningkatkan risiko kematian dan kecacatan parah pada pasien cedera otak akut, namun hiperkapnia tampaknya memainkan peran penting dalam perlindungan saraf. Mekanisme hiperkapnia dan hipokapnia pada sistem saraf patut mendapat perhatian kita.

Tujuan: Menggambarkan monitoring end tidal CO₂ dengan hiperventilasi intra operasi pada pasien ICH untuk mengatasi RK peningkatan tekanan intra kranial.

Metode: Jenis penelitian ini menggunakan metode deskriptif kualitatif rancangan studi kasus yang melibatkan dua pasien dengan Intracerebral Hemorrhage. Tugas Akhir Neuroanestesi ini dilakukan monitoring end tidal CO₂ dengan hiperventilasi pada kedua kasus kelolaan selama intra operasi sesuai asuhan keperawatan serta tujuan dan kriteria hasil yang diharapkan.

Hasil: Masalah kesehatan anestesi pada kedua pasien adalah resiko komplikasi peningkatan tekanan intra kranial berhubungan dengan naiknya tekanan otak dan pembuluh darah otak diatas batas normal dibuktikan dengan terjadinya edema serebral. Setelah dilakukan intervensi monitoring end tidal CO₂ dengan hiperventilasi selama intra operasi, masalah kesehatan anestesi teratasi peningkatan tekanan intracranial tidak terjadi.

Kesimpulan: Menurut penelitian yang telah dilakukan, tindakan monitoring end tidal CO₂ dengan hiperventilasi selama intra operasi ini mampu menurunkan tekanan intracranial jika dilakukan dalam jangka pendek. Pemantauan multimodalitas terhadap pasien tetap diperlukan untuk memantau keberhasilan dalam tindakan ini.

Kata Kunci: Hiperventilasi; tekanan intrakranial; bedah saraf

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**MONITORING OF END TIDAL CO₂ WITH INTRAOPERATIVE
HYPERVENTILATION IN INTRACEREBRAL HEMORRHAGE (ICH)
PATIENTS FOR OVERCOMING
THE INCREASED RISK OF COMPLICATIONS
INTRACRANIAL PRESSURE**

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ABSTRACT

Background: Intracerebral is an emergency condition when a ruptured blood vessel causes bleeding inside the brain. Increased cerebral blood volume due to hypercapnia may have adverse effects on intracranial pressure in patients with acute brain injury. In neurosurgery, hypocapnia is generally achieved through hyperventilation when an increase in intracranial pressure is expected to occur which causes one of the anesthetic health problems. Previous research has mainly focused on the effect of hypocapnia on neuroprotection, but this effect cannot be maintained and continued hypocapnia may increase the risk of death and severe disability in acute brain injury patients, but hypercapnia appears to play an important role in neuroprotection. The mechanisms of hypercapnia and hypocapnia on the nervous system deserve our attention.

Objective: To describe the monitoring of end tidal CO₂ with intraoperative hyperventilation in Intracerebral Haemorrhage patients to overcome the risk complications of increased intracranial pressure.

Methods: This type of study used a qualitative descriptive method of case study design involving two patients with Intracerebral Hemorrhage. This Neuroanesthesia Final Project is carried out monitoring of the end tidal CO₂ with hyperventilation in both cases of management during intraoperative operation according to the care of the arrangement as well as the goals and criteria of the expected results.

Results: The anesthesia health problem in both patients was the risk of complications of increased intracranial pressure related to an increase in brain pressure and cerebral blood vessels above normal limits as evidenced by the occurrence of cerebral edema. After an intervention in monitoring the end of tidal CO₂ with hyperventilation during intraoperative surgery, anesthesia health problems were resolved, and the increase in intracranial pressure did not occur.

Conclusion: According to the research that has been conducted, the act of monitoring the end tidal CO₂ with hyperventilation during intraoperative is able to reduce intracranial pressure if carried out in the short term. Multimodality monitoring of patients is still necessary to monitor the success of these measures.

Keywords: Hyperventilation; intracranial pressure; neurosurgery

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