

Value of Optic Nerve Sheath Diameter in Diagnosis and Follow Up of Patients with Disturbed Conscious Level

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● بحث مستخرج من رسالة
هذا البحث جارى تقييمه حاليا بلجنة الترقيات لطب الحالات الحرجة ومقدم للجنة من دكتور تامر محمد
سيد مدرس الحالات الحرجة

● أسماء الباحثين:

د/ أسامة محمود ممتاز
أستاذ مساعد الحالات الحرجة- كلية الطب - جامعة الفيوم

د/ تامر محمد سيد
مدرس الحالات الحرجة- كلية الطب - جامعة الفيوم
د/ عمر محمد سعيد

أستاذ مساعد الرمد - كلية الطب - جامعة الفيوم

ط / أماني محمود محمد
طبيب مقيم الحالات الحرجة- كلية الطب - جامعة الفيوم

Abstract:

Background: Ultrasonographic measurement of optic nerve sheath diameter is a simple, non-invasive, and reliable method of detecting elevated intracranial pressure (ICP) in critical patients. Optic nerve sheath communicates with the dura mater covering the brain and contains cerebrospinal fluid, allowing pressure transmission from the cranium. Therefore, changes in cerebrospinal fluid (CSF) pressure have been shown to produce changes in ONSD.

Objective: This study aimed to assess the accuracy of optic nerve sheath diameter (ONSD) in diagnosis and follow-up patients with disturbed conscious levels compared with CT brain and fundus examination.

Patients and Methods: One hundred forty-one participants were included in the study, classified into 76 cases admitted with disturbed conscious levels due to elevated ICP and 65 controls. All patients were subjected to CT brain and optic nerve US and fundus examination at the time of admission and follow-up after 48 h after proper management.

Results: The current study showed that ONSD is significant in predicting elevated ICP at the cut-off point of average ONSD of 5.19 mm with 97% sensitivity and 98% specificity, and the area under the curve (AUC) was 0.996. The present study revealed a significant inverse correlation between ONSD and GCS in patients with increased ICP.

Conclusion: Ultrasonic measurement of ONSD is a promising technique in diagnosing and following patients with disturbed conscious levels.