جامعة عين شمس
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التحديثات في الرعاية الحرجة لنزيف المخ

رسالة مقدمة توطئة للحصول على درجة الماجستير في الرعاية المركزة

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المحتويات:

- المقدمة

- الهدف من العمل

(١) الباثوفسيولوجية للضرر الناتج عن نزيف المخ.

(٢) تشخيص نزيف المخ و التصوير الدماغى.

(٣) المعالجة الطارئة و طويلة المدى.

- الملخص

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- الملخص العربي

الملخص العربى

تتمثل أهمية الإصابة بنزيف المخ في ارتفاع معدل الوفيات حيث أن أعراض الإصابة تتنوع من عجز عصبي طفيف إلى مضاعفات شديدة وعدم الإستقرار القلبي وإرتفاع الضغط داخل الجمجمة مما قد يؤدي إل الوفاة و يستند التشخيص إلى الأعراض السريرية والفحوصات المعملية والتصوير الذي يشمل الأشعه المقطعية والرنين المغناطيسي وتصوير الأوعية.

تقديرات المعدل السنوي للاصابة نحو ١٦-٣٣ حالة لكل ١٠٠،٠٠٠. وهناك العديد من الحالات المرضية الكامنة المرتبطة بنزيف المخ مثل ارتفاع ضغط الدم و تمدد الأوعية الدموية. و تشمل عوامل الخطورة التى قد تؤدى للاصابة مرض السكرى، السكتات الدماغية السابقة، التدخين، الكحول، بعض الأدوية و خاصة الوارفارين والأسبرين، أمراض الدم و الكبد و الأورام.

نزيف المخ هو حالة طبية طارئة. التشخيص السريع و الإدارة المنتبهة لمرضى نزيف المخ أمر بالغ الأهمية لأن تدهور الحالة في وقت مبكر شائع في الساعات القليلة الأولى. و أكثر من ٢٠ ٪ من المرضى يعانون من انخفاض في درجة الوعى > ٢ نقطة فى الفترة بين تقييم الخدمات الطبية الطارئة قبل دخول المستشفى و التقييم الأولي في قسم الطوارئ.

الأشعة المقطعية بدون استخدام الصبغة هى الأداة الأكثر توفراً و بالتالي يشيع استخدامها في أقسام الطوارئ. و يعتقد أنها شديدة الدقة في الكشف عن نزيف المخ بنسبة ١٠٠ %. و يستخدم الرنين المغناطيسي فى المتابعة لتحديد الأسباب الثانوية لنزيف المخ مثل التشوه الشرياني و أورام المخ.

يجب أن تتركز الإدارة الأولية لنزيف المخ على تقييم قدرة التنفس ، المجرى الهوائى للمريض، وعلامات زيادة الضغط داخل الجمجمة و ضغط الدم.
يجب العمل على استقرار العلامات الحيوية للمريض على أسرع وجه، وفقا للمبادئ التوجيهية (ATLS). المرضى الذين يعانون من نزيف المخ غالبا فى حاجة لحماية مجرى الهواء عن طريق تركيب امبوبة حنجرية بالقصبة الهوائية.

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Updates in Critical Care Management of Intracerebral Hemorrhage

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LIST OF ABBREVIATIONS

AVM: Arterio-venous malformation.

BP: Blood pressure.

BUN: Blood urea nitrogen.

CBC: Complete blood count.

CT: Computed tomography**.**

CVP: Central venous pressure.

DVT: Deep venous thrombosis.

ECG: Electro cardio gram.

EMS: Emergency medical services.

FFP: Fresh frozen plasma.

ICH: Intra cerebral hemorrhage**.**

ICP: Intracranial pressure.

INR: International normalized ratio.

IVC: Inferior vena cava

IVH : Intra ventricular hemorrhage**.**

MRI: Magnetic resonance imaging.

OAC: Oral anti-coagulant**.**

PE: Pulmonary embolism.

VKA: Vitamin k antagonist.

SAH: Subarachnoid hemorrhage**.**

INTRODUCTION

Intra cerebral hemorrhage (ICH) is associated with substantial morbidity and mortality. The varied clinical presentation of ICH, ranging from minor neurological deficits to fatal herniation syndromes arises from parenchymal damage, elevated intracranial pressure and cardiopulmonary instability. Diagnosis is based on clinical presentation, laboratory investigations and imaging, which include computed tomography (CT), magnetic resonance imaging (MRI) and angiography. ***(Magistris et al 2013)***

Estimates of the annual incidence range from 16 to 33 cases per 100,000. There are many underlying pathological conditions associated with intra cerebral hemorrhage; hypertension, amyloid angiopathy, ruptured saccular aneurysm and vascular malformation account for the majority of cases. Other important risk factors for acute intra cerebral hemorrhage include any recent trauma, prior strokes, diabetes, smoking, alcohol, certain drugs especially warfarin, aspirin and other anticoagulants, hematologic disorders, liver diseases, neoplasms and infections. ***(Kase 2012)***

Hypertensive vasculopathy is the most common etiology of spontaneous intra cerebral hemorrhage. Cerebral amyloid angiopathy is the most common cause of non-traumatic lobar ICH in the elderly, while vascular malformations are the most common cause of intra cerebral hemorrhage in children. ***(Beslow et al 2010)***

Intra cerebral hemorrhage is a medical emergency. Rapid diagnosis and attentive management of patients with ICH is crucial because early deterioration is common in the first few hours after ICH onset. More than 20% of patients will experience a decrease in the Glasgow Coma Scale (GCS) score of ›2 points between the pre-hospital emergency medical services assessment and the initial evaluation in the emergency department. ***(Morgenstern et al 2010)***

The non-contrast CT is the most readily available tool providing rapid feedback and is thus commonly used in emergency departments. It is thought to be nearly 100% sensitive for detecting clinically relevant acute hemorrhages. Moreover, it may elucidate hematoma location and expansion and the presence of edema. MRIs are most frequently utilized as follow-up investigations to identify secondary causes of ICH, such as arterio-venous malformation (AVM), amyloid angiopathy, or associated neoplasm. ***(Nentwich and Veloz 2012)***

Early neurologic deterioration within 48 hours after intra cerebral hemorrhage onset is not infrequent and is associated with a poor prognosis. Potential mechanisms include hemorrhage enlargement, development of hydrocephalus, and perilesional edema. The inflammatory response to the hemorrhage may also play a role. ***(Rodriguez-Luna et al 2011)***

Intra cerebral hemorrhage is a neurological emergency and initial management should be focused on assessing breathing capability, patients airway, signs of increased intracranial tension and blood pressure. The patient's vital signs must be immediately stabilized according to ATLS guidelines. Patients with ICH are often unable to protect their airway and may need endotracheal intubation***. (Stone and Humphries 2011)***

Advances in acute care including investigative, diagnostic, and management strategies are important to improving outcomes for patients with ICH. Physicians caring for patients with ICH should anticipate the need for emergent blood pressure reduction, coagulopathy reversal, cerebral edema management, and surgical interventions. Good general care should be directed at maintaining vital cardiopulmonary function. Measures to prevent sub-acute complications of intra cerebral hemorrhage including aspiration, malnutrition, pneumonia, deep vein thrombosis, pulmonary embolism, pressure sores, orthopedic complications, and contractures are recommended. ***(Koto et al 2014)***

The prognosis after ICH depends upon the location of hemorrhage (supra versus infra-tentorial location), size of the hematoma, level of consciousness, patient age, and overall medical health and condition. ***(Gonzalez-Perez et al 2013)***

AIM OF WORK

The aim of this essay is to discuss recent knowledge and evidence based studies regarding critical care management of intra cerebral hemorrhage.

PATHOGENESIS

Intra cerebral hemorrhage accounts for 8-13% of all strokes and results from a wide spectrum of disorders. Intra cerebral hemorrhage is more likely to result in death or major disability than ischemic stroke or sub arachinoid hemorrhage. Intra cerebral hemorrhage and accompanying edema may disrupt or compress adjacent brain tissue, leading to neurological dysfunction. Substantial displacement of brain parenchyma may cause elevation of intracranial pressure (ICP) and potentially fatal herniation syndromes ***(Magistris et al 2013)***.

Non traumatic intra cerebral hemorrhage most commonly results from hypertensive damage to blood vessel walls (eg, hypertension, eclampsia, drug abuse), but it also may be due to autoregulatory dysfunction with excessive cerebral blood flow (eg, reperfusion injury, hemorrhagic transformation, cold exposure), rupture of an aneurysm or arterio venous malformation (AVM), arteriopathy (eg, cerebral amyloid angiopathy), altered hemostasis (eg, thrombolysis, anticoagulation, bleeding diathesis), hemorrhagic necrosis (eg, tumor, infection), or venous outflow obstruction (eg, cerebral venous thrombosis) ***(Woo et al 2004).***

Non penetrating and penetrating cranial trauma are also common causes of intra cerebral hemorrhage. Patients who experience blunt head trauma and subsequently receive Warfarin or Clopidogrel are considered at increased risk for traumatic intracranial hemorrhage. According to one study, patients receiving Clopidogrel have a significantly higher prevalence of immediate traumatic intracranial hemorrhage compared with patients receiving warfarin. Delayed traumatic intracranial hemorrhage is rare and occurred only in patients receiving warfarin ***(Nishijima et al 2013).***