



REVIEW ARTICLE

Clinical management guidelines for subarachnoid haemorrhage. Diagnosis and treatment[☆]

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KEYWORDS

Subarachnoid haemorrhage;
Cerebral aneurysm;
Diagnosis;
Vasospasm;
Delayed cerebral ischaemia;
Rebleeding;
Medical treatment

Abstract

Objective: To update the Spanish Society of Neurology's guidelines for subarachnoid haemorrhage diagnosis and treatment.

Materials and methods: A review and analysis of the existing literature. Recommendations are given based on the level of evidence for each study reviewed.

Results: The most common cause of spontaneous subarachnoid haemorrhage (SAH) is cerebral aneurysm rupture. Its estimated incidence in Spain is 9/100,000 inhabitants/year with a relative frequency of approximately 5% of all strokes. Hypertension and smoking are the main risk factors. Stroke patients require treatment in a specialised centre. Admission to a stroke unit should be considered for SAH patients whose initial clinical condition is good (Grades I or II on the Hunt and Hess scale). We recommend early exclusion of aneurysms from the circulation. The diagnostic study of choice for SAH is brain CT (computed tomography) without contrast. If the test is negative and SAH is still suspected, a lumbar puncture should then be performed. The diagnostic tests recommended in order to determine the source of the haemorrhage are MRI (magnetic resonance imaging) and angiography. Doppler ultrasonography studies are very useful for diagnosing and monitoring vasospasm. Nimodipine is recommended for preventing delayed cerebral ischaemia. Blood pressure treatment and neurovascular intervention may be considered in treating refractory vasospasm.

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PALABRAS CLAVE

Hemorragia subaracnoidea; Aneurisma cerebral; Diagnóstico; Vasoespasmo; Isquemia cerebral diferida; Resangrado; Tratamiento médico

Conclusions: SAH is a severe and complex disease which must be managed in specialised centres by professionals with ample experience in relevant diagnostic and therapeutic processes. © 2012 Sociedad Española de Neurología. Published by Elsevier España, S.L. All rights reserved.

Guía de actuación clínica en la hemorragia subaracnoidea. Sistemática diagnóstica y tratamiento

Resumen

Objetivo: Actualización de la guía para el diagnóstico y tratamiento de la hemorragia subaracnoidea de la Sociedad Española de Neurología.

Material y métodos: Revisión y análisis de la bibliografía existente. Se establecen recomendaciones en función del nivel de evidencia que ofrecen los estudios revisados.

Resultados: La causa más frecuente de hemorragia subaracnoidea espontánea (HSA) es la rotura de un aneurisma cerebral. Su incidencia se sitúa en torno 9 casos por 100.000 habitantes/año y supone un 5% de todos los ictus. La hipertensión arterial y el tabaquismo son sus principales factores de riesgo. Se ha de realizar el tratamiento en centros especializados. Se debe considerar el ingreso en unidades de ictus de aquellos pacientes con HSA y buena situación clínica inicial (grados I y II en la escala de Hunt y Hess). Se recomienda la exclusión precoz de la circulación del aneurisma. El estudio diagnóstico de elección es la tomografía computarizada (TC) craneal sin contraste. Si esta es negativa y persiste la sospecha clínica se aconseja realizar una punción lumbar. Los estudios de elección para identificar la fuente de sangrado son la resonancia magnética (RM) y la angiografía. Los estudios ultrasonográficos son útiles para el diagnóstico y seguimiento del vasoespasmo. Se recomienda el nimodipino para la prevención de la isquemia cerebral diferida. La terapia hipertensiva y el intervencionismo neurovascular pueden plantearse para tratar el vasoespasmo establecido.

Conclusiones: La HSA es una enfermedad grave y compleja que debe ser atendida en centros especializados, con suficiente experiencia para abordar el proceso diagnóstico y terapéutico. © 2012 Sociedad Española de Neurología. Publicado por Elsevier España, S.L. Todos los derechos reservados.

Although subarachnoid haemorrhage (SAH) is the least frequent stroke subtype, its morbidity/mortality rate is the highest. The social and healthcare burden it creates is even heavier when we consider that a sizeable percentage of cases affect younger patients who were previously healthy and completely independent. In this study, we update the recommendations regarding the diagnostic methods and medical treatment for patients with SAH. Grades of recommendation and the scientific evidence supporting them are classified according to Centre for Evidence-Based Medicine (CEBM) criteria (Table 1).

Epidemiology

SAH is one of the most feared neurological events due to its associated high mortality and tendency to cause dependence. Its economic impact is more than twice that estimated for ischaemic stroke.¹ SAH cases account for 5% of all strokes.^{2,3} This percentage has risen slightly in the last 30 years due to the decrease in incidence of other stroke subtypes, a tendency associated with improved control over vascular risk factors (VRF). However, this has not affected the incidence of SAH, which remains stable⁴ at 9 cases/100,000 inhabitants per year according to the European Registers of Stroke study (EROS).² Similar data are reported by international meta-analyses⁵ except in Japan and Finland, which report twice this rate. In the case of

Spain, the Spanish Society of Neurosurgery reported an increase in incidence after the age of 50, with a slightly higher percentage of women being affected than men. It found no differences related to the day of the week or the month or season of the year, in contrast to results from Rochester,⁷ where researchers observed increased incidence in the population during winter months. The study by Omama et al.⁸ found an association between SAH and the hour of onset, with a bimodal incidence curve; this pattern had already been described for haemorrhagic strokes.⁹ One theory is that this association with circadian rhythm might be explained by the variations in arterial blood pressure throughout the day, and by the increase in platelet aggregation that occurs during the waking process.¹⁰ Some 5% of these patients die before reaching the hospital or undergoing imaging studies.³ This percentage is significantly lower than the classic figures for sudden death due to anterior or posterior circulation aneurysms (12% and 44%, respectively).¹¹ Nevertheless, these figures may be biased due to the complexity of defining sudden death and extrapolating data to different countries and cities. In the Spanish study, as many as 68% of patients present in "good clinical condition" at time of arrival, defined as grades I through III on the World Federation of Neurosurgeons Scale (WFNS, Table 2). These grades indicate a score between 13 and 15 on the Glasgow coma scale. This status is a key factor in the decision to hospitalise SAH cases in stroke units.¹² After an initial angiography yields negative results, 19% of

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