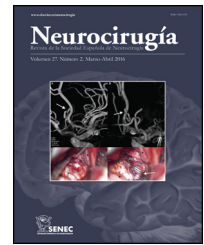




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Clinical Research

Thrombotic and haemorrhagic complications in patients with cerebral aneurysms treated by endovascular approach and their association with the use of antiplatelet agents: Descriptive evaluation[☆]

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ABSTRACT

Objective: The protocol for optimal antiplatelet therapy to prevent thrombotic complications following brain aneurysm embolisation is not clear. Our objective is to describe the characteristics of patients presenting with thrombotic or haemorrhagic complications secondary to endovascular treatment.

Methods: A cross sectional descriptive study was performed, which included all patients that required endovascular treatment for brain aneurysm at San Ignacio University Hospital from November 2007 to January 2016. Thrombotic and haemorrhagic complications over six months of follow-up were assessed, considering the premedication regimen with antiplatelet agents, location, size of the aneurysm and embolisation technique performed.

Results: 122 patients were evaluated, on whom 130 procedures were performed for endovascular treatment of brain aneurysms. Thrombotic complications were more frequent in patients who did not receive premedication (25%) compared to those who did receive an antiplatelet treatment regimen (standard dose 3.87% or loading dose 8.70%), and this difference was statistically significant ($p = 0.043$).

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Conclusions: Thromboembolic events are the most common complication of brain aneurysm embolisation. Both our study and the literature suggest that the use of dual antiplatelet therapy with aspirin and clopidogrel lowers the rate of symptomatic thromboembolic complications, regardless of the administration protocol.

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Complicaciones trombóticas y hemorrágicas en pacientes con aneurismas cerebrales tratados por vía endovascular y su relación con el uso de antiagregantes plaquetarios: evaluación descriptiva

R E S U M E N

Palabras clave:

Tratamiento antiplaquetario
Aneurismas cerebrales
Tratamiento endovascular
Hemorragia intracerebral
Infarto cerebral

Objetivo: El protocolo de medicación antiplaquetaria óptimo para prevenir las complicaciones trombóticas después de embolización de aneurismas cerebrales no es claro. Nuestro objetivo es describir las características de los pacientes que presentan complicaciones trombóticas o hemorrágicas secundarias al tratamiento endovascular.

Métodos: Se realizó un estudio descriptivo de corte transversal. Se incluyó a todos los pacientes que requirieron manejo endovascular de aneurismas cerebrales en el Hospital Universitario San Ignacio desde noviembre del 2007 hasta enero del 2016. Se evaluaron las complicaciones trombóticas o hemorrágicas durante 6 meses de seguimiento, teniendo en cuenta el esquema de premedicación con antiagregantes plaquetarios, localización, tamaño del aneurisma y técnica de embolización utilizada.

Resultados: Se evaluó a 122 pacientes en los cuales se realizaron 130 procedimientos para tratamiento endovascular de aneurismas cerebrales. Las complicaciones trombóticas fueron más frecuentes en pacientes que no recibieron premedicación (25%) comparados con aquellos que recibieron algún esquema de antiagregación (estándar 3,87% o carga 8,70%); esta diferencia fue estadísticamente significativa ($p=0,043$).

Conclusiones: Los eventos tromboembólicos son la complicación más frecuente de la embolización de aneurismas cerebrales. Nuestro trabajo, al igual que la literatura revisada, sustenta el uso de terapia antiplaquetaria dual con ácido acetilsalicílico y clopidogrel para disminuir la tasa de complicaciones tromboembólicas sintomáticas independientemente del protocolo de administración.

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Introduction

The last decade has witnessed profound advances in endovascular brain aneurysm treatment techniques. These advances have expanded the spectrum of intracranial aneurysms treatable by endovascular approach. However, these techniques have been observed to cause increased acute and late thromboembolic complications.

In the literature reviewed, thromboembolic events were the most common complication of coil embolisation of cerebral aneurysms.¹⁻⁴ These events account for more than half of complications in endovascular management of unruptured aneurysms.²

The use of dual antiplatelet therapy with acetylsalicylic acid (ASA) and clopidogrel has been shown to decrease the rate of symptomatic thromboembolic complications and reduce the risk of late ischaemia. Some studies have demonstrated that suspension of antiplatelet therapy is associated with ischaemic events with a higher frequency in patients with high cardiovascular risk, patients with complex aneurysms and patients requiring a flow-diverter stent.^{1,2,5,6} For this

reason, some studies have recommended using it for long periods of time (up to nine months) and making a late switch to monotherapy.^{5,7}

The protocol for optimal antiplatelet medication to prevent thrombotic complications following embolisation of cerebral aneurysms is unclear and its efficacy depends on many factors.^{5,8-15} In vitro studies have determined that ASA achieves a sufficient antiplatelet effect 12 h after being administered in a loading dose of 200 mg, and that clopidogrel in a dose of 300–400 mg inhibits platelet aggregation two hours after administration and exerts the same effect as daily medication.¹⁶ Under these considerations, the literature reviewed established that a loading dose of 300 mg of ASA and clopidogrel at least 4 h before a procedure may be comparable to the standard regimen. The regimen accepted as standard premedication for embolisation of unruptured aneurysms is 100 mg of aspirin and 75 mg of clopidogrel daily for more than five days. This regimen has proven therapeutic efficacy and safety.^{4,5,10,17}

The loading method is intended to shorten the period of abnormal platelet function, since this period is recognised as a cumulative risk for haemorrhagic events with intracra-

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