



ORIGINAL ARTICLE

Impact of a comprehensive stroke centre on the care of patients with acute ischaemic stroke due to cervical artery dissection ☆,☆☆



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KEYWORDS

Cervical artery dissection;
Stroke;
Comprehensive stroke centre;
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Systemic thrombolysis;
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Abstract

Introduction: Cervical artery dissection (CAD) is the cause of 2% to 3% of ischaemic strokes and 10% to 25% of the ischaemic strokes in young people. Our objective is to evaluate whether the implementation of a comprehensive stroke centre (CSC) improves the diagnosis and modifies the prognosis of patients with acute stroke due to CAD.

Patients and methods: Retrospective study of a registry of consecutive patients with acute stroke due to CAD. They were classified according to the period of care at our centre: pre-CSC (October 2004 to March 2008, 42 months) or post-CSC (April 2008 to June 2012, 51 months). We compared baseline characteristics, methods of diagnosis, treatment and outcome of these patients in both periods.

Results: Nine patients were diagnosed with CAD in the pre-CSC and 26 in the post-CSC, representing 0.8% and 2.1% of all ischaemic strokes treated in each period, respectively. The diagnosis of CAD was made within the first 24 hours in 42.3% of the patients in the post-CSC versus 0% in the pre-CSC, through the use of urgent cerebral angiography as a diagnostic test in 46.2% of cases in the second period compared to 0% in the first. The severity of stroke (median NIHSS score 11 vs. 3, $P = .014$) and time to neurological care (265 min vs. 148, $P = .056$) were higher in the post-CSC period. Endovascular treatment was performed in 34.3%, all in the post-CSC. The functional outcome was comparable in both periods.

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PALABRAS CLAVE

Diseción de arterias cervicales;
Ictus;
Centro terciario de ictus;
Arteriografía;
Trombólisis sistémica;
Tratamiento endovascular

Conclusions: The implementation of a CSC increases the frequency of the diagnosis of CAD, as well as the treatment options for these patients in the acute phase of stroke.

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Impacto de un centro terciario de ictus en la atención de pacientes con ictus isquémico agudo por disección de arterias cervicales

Resumen

Introducción: La disección de arterias cervicales (DAC) es la causa del 2-3% de ictus isquémicos y del 10-25% en pacientes jóvenes. Nuestro objetivo es evaluar si la implementación de un centro terciario de ictus (CTI) facilita el diagnóstico y modifica el pronóstico de los pacientes con ictus agudo por DAC.

Pacientes y métodos: Estudio retrospectivo de un registro de pacientes consecutivos con ictus agudo por DAC. Se clasificaron según el periodo de atención: pre-CTI (octubre 2004-marzo 2008, 42 meses) o post-CTI (abril 2008-junio 2012, 51 meses). Se compararon las características basales, el método diagnóstico, el tratamiento y la evolución de estos pacientes entre ambos periodos.

Resultados: Se diagnosticó a 9 pacientes con DAC en el periodo pre-CTI y 26 en el post-CTI, representando el 0,8 y el 2,1% de los ictus isquémicos atendidos en cada periodo. El diagnóstico de DAC se realizó en las primeras 24 h en el 42,3% de pacientes en el periodo post-CTI frente al 0% en el pre-CTI, gracias al uso de la arteriografía cerebral urgente como prueba diagnóstica en el 46,2% de los casos en el segundo periodo frente al 0% en el primero. La gravedad del ictus (mediana puntuación escala NIHSS 11 vs. 3, $p=0,014$) y el tiempo hasta la atención neurológica (265 minutos vs. 148, $p=0,056$) fueron mayores en la fase post-CTI. Se realizó tratamiento endovascular en el 34,3%, todos en el periodo post-CTI. El pronóstico funcional fue comparable en ambos periodos.

Conclusiones: La implementación de un CTI incrementa la frecuencia en el diagnóstico de DAC y aumenta las opciones terapéuticas en la fase aguda del ictus en estos pacientes.

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Introduction

Cervical artery dissection (CAD) is responsible for 2% to 3% of all ischaemic strokes in the general population and 10% to 25% of ischaemic strokes in patients younger than 50 years.^{1,2} Arteriography has traditionally been the diagnostic tool of choice for CAD. However, new and less invasive techniques, including magnetic resonance imaging (MRI), computerised tomography (CT) angiography, and ultrasonography studies, have replaced conventional arteriography in daily clinical practice. Despite the above, none of these new techniques has proved more sensitive than another for diagnosing CAD. As a result, conventional arteriography is still considered the gold standard.^{3,4}

Intravenous thrombolysis is a safe treatment in the acute phase of CAD-related strokes.⁵⁻⁷ However, CAD-related ischaemic stroke patients treated with systemic thrombolysis show poorer clinical progress due to frequent tandem intracranial internal carotid artery/middle cerebral artery occlusions.^{6,8} Experience with endovascular treatment (EVT) in CAD-related stroke patients is limited,⁹⁻¹³ and it remains uncertain whether EVT provides greater clinical benefits than systemic thrombolysis.^{14,15}

Comprehensive stroke centres (CSC) provide 24-hour diagnostic care with multimodal neuroimaging tests of

viable ischaemic tissue, brain angiography studies, and mechanical thrombectomy.¹⁶

Our purpose was to determine whether caring for patients in a CSC facilitates diagnosing CAD and affects patients' functional outcomes.

Patients and methods

We retrospectively studied patients with CAD-related acute ischaemic stroke diagnosed at Hospital Germans Trias i Pujol (HGTiP) and included in the Spanish Society of Neurology's prospective stroke registry between October 2004 and June 2012.¹⁷

In March 2008, the HGTiP implemented a 24-hour on-call team consisting of an interventional neuroradiologist, a neurologist specialised in cerebrovascular disease, specialised nursing staff, and an anaesthetist. A neuro-angioradiology room was available at all times. Specific protocols were also developed for diagnosing acute-phase stroke and administering EVT.¹⁶ The hospital was certified as a CSC by the Catalan Regional Ministry of Health.

Patients were classified into 2 groups according to the period when they received care: pre-CSC status (October 2004 to March 2008; 42 months) or post-CSC status (April 2008 to June 2012; 51 months).

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