



## EDITORIAL

### Stroke care in Spain. What do we have? What do we need?☆

E. Díez-Tejedor\*, B. Fuentes

Servicio de Neurología y Centro de Ictus, Área de Neurociencias, Instituto de Investigación IdIPAZ, Hospital Universitario La Paz, Universidad Autónoma de Madrid, Madrid, Spain

#### KEYWORDS

Stroke units;  
Stroke care;  
National Stroke  
Strategy

**Abstract** The high level of scientific evidence which supports the recommendations for the care of acute stroke in stroke units (SUs) with a good health care network, does not correspond to the level of introduction in Spain. In this regard, the Cerebrovascular Diseases Study Group (GEECV) of the Spanish Society of Neurology has taken the initiative to conduct the “National Survey of Stroke Care” that will help to determine the real situation in acute stroke management in Spain just before the approval of the National Stroke Strategy (NSS) by the Ministry of Health and concludes that in the first semester of 2009 there were 39 SUs, unevenly distributed with higher concentration in Madrid and Barcelona. Although the approval of the NSS was a major achievement, much remains to be done to meet the objectives. We thank the GEECV’s initiative, which gives us an “X-ray” of the, not very satisfactory, state of stroke care in Spain in December 2008, highlighting some achievements and the many shortcomings. Therefore, we must continue to improve, refine our data collection with records that include all available resources and all the stroke patients attended. We invite GEECV to carry out a second study to evaluate the impact of NSS and to serve as a stimulus to achieve a substantial improvement in stroke care in Spain, closer to the recommendations of the new PASI document.

© 2011 Sociedad Española de Neurología. Published by Elsevier España, S.L. All rights reserved.

#### PALABRAS CLAVE

Unidades de ictus;  
Asistencia del rictus;  
Estrategia Nacional  
de Ictus

#### Situación asistencial del ictus en España. ¿Qué tenemos? ¿Qué nos falta?

**Resumen** El alto grado de evidencia científica en el que se sustentan las recomendaciones sobre la asistencia de los pacientes con ictus agudo en unidades de ictus (UI) con una buena red asistencial no se corresponde con el grado de implantación de las mismas en España. En este sentido, el Grupo de Estudio de Enfermedades Cerebrovasculares (GEECV) de la SEN ha tomado la iniciativa de elaborar la «Encuesta nacional de la asistencia del ictus» que ayuda a conocer cómo era ésta justo antes de aprobarse la Estrategia Nacional del Ictus (ENI) por el Ministerio de Sanidad y concluye que en el primer semestre del año 2009 existían 39 UI, distribuidas de forma desigual con mayor concentración en Madrid y Barcelona. Aunque la firma de la ENI ha supuesto un importante logro, todavía queda mucho por hacer para cumplir los objetivos planteados. Es motivo de satisfacción esta iniciativa del GEECV, que nos aporta una «radiografía» de la situación de la atención del ictus en España a diciembre de 2008, que no es muy satisfactoria

☆ Please cite this article as: Díez-Tejedor E, Fuentes B. Situación asistencial del ictus en España. ¿Qué tenemos? ¿Qué nos falta? Neurología. 2011;26:445–8.

\* Corresponding author.

E-mail address: ediezt@meditex.es (E. Díez-Tejedor).

y que alumbra algún logro y muchas carencias, por lo que hemos de continuar mejorando, perfeccionando nuestra recogida de datos mediante registros que incluyan todos los recursos disponibles en la atención del ictus y los pacientes atendidos. Invitamos al GEECV a realizar un segundo trabajo que evalúe el impacto de esta ENI y que sirva de estímulo para conseguir una mejora continua y sustancial de la situación en España, y aproximarnos a las recomendaciones del nuevo documento Plan de atención sanitaria del ictus.

© 2011 Sociedad Española de Neurología. Publicado por Elsevier España, S.L. Todos los derechos reservados.

For many years, caring for stroke has been suffering from a major therapeutic nihilism, with patients being entrusted, at best, to the natural course of their condition. Fortunately, since the 1980s, studies have begun to be published showing that specialist attention in *ictus* has an impact on patients' progress, leading the World Health Organization and the European Stroke Council to issue in 1995 what has become known as the Helsinborg Declaration,<sup>1</sup> ratified in 2006,<sup>2</sup> when the target set was to achieve, for all patients with an acute stroke, early specialist assessment and treatment in a stroke unit (SU). In addition, however, over and above the scientific evidence, specialized neurological care for stroke patients is a clear demand of modern society. Thus, the associations of neurology patients and the Spanish Neurology Society (SEN) drafted back in 2000 the so-called Madrid Declaration, setting out the "right of all citizens to be seen when necessary by an expert with specific competencies in the various neurological pathologies, with access to the most up-to-date diagnostic and therapeutic techniques, and to be able to be cared for in specific interdisciplinary units where they can obtain all assistance necessary for their health problem, with assurances that this care will be of the highest quality possible".<sup>3</sup> In his report on subsequent brain damage, Spain's Ombudsman included a recommendation for the Regional Health Authorities: stress should be placed on the early specialized care of stroke patients through the creation of specific stroke units or specialist stroke teams so as to cover the entire population.<sup>4</sup>

Since the results of the first randomized studies demonstrating the efficacy of SU were published in the 1980s, these units have become the cornerstone for the treatment of acute stroke. Subsequently, in the 1990s, the efficacy of intravenous fibrinolytic treatment was demonstrated in selected cases of acute cerebral infarction and we are currently seeing major advances in the development of reperfusion therapies.

Stroke units have been shown to be clearly effective in reducing mortality and better functional recovery, with an evidence level of I (grade A recommendation) based on randomized studies and meta-analyses.<sup>5</sup> They also represent a cost-effective measure, as they shorten the mean duration of patient stays and increase their survival without this implying a larger number of institutionalizations, with a higher number of independent patients. Their benefits extend to all types of ictus and are independent of age and severity.<sup>6,7</sup> In addition, in comparison with thrombolysis, they have a larger potential target population as it has been estimated that 83% of patients would be candidates

for specialist management at an SU, versus 10% who could be treated with intravenous thrombolysis in the first 3 h.<sup>8</sup> Nonetheless, the high degree of scientific evidence underlying the recommendations on care for acute stroke patients at these stroke units does not correspond to the degree of their implementation in Spain, nor even in the whole of the European Union.

In this sense, the SEN's Cerebrovascular Diseases Study Group (GEECV) has taken the initiative and assumed the responsibility for drawing up a snapshot of the situation of stroke care in Spain at the end of 2008, and this issue of *Neurología* presents the results of the "National Stroke Care Survey",<sup>9</sup> which helps to show what it was like just before the Ministry of Health approves the National Stroke Strategy.<sup>10</sup>

As is well known, in recent years there has been considerable rapprochement between the Health Authorities and the scientific societies, which has culminated in the preparation of stroke care plans at both regional and national levels.<sup>11-15</sup> It should be pointed out that these documents have arisen thanks to the drive given by the SEN's GEECV through the publication and dissemination of the Stroke Health Care Plan (PASI), published in 2006, which established the levels of care to be provided for this condition and the importance of the Stroke Code,<sup>13</sup> recently revised<sup>11</sup>), as well as to groups of stroke experts in a number of regions that have, together with their respective Regional Governments, initiated care plans for acute stroke. These documents have set out the bases for implementing the Stroke Code both inside and outside the hospital context, as well as improvements in the levels of care through an increase in the number of hospitals with an SU, stroke teams, and the emergence of stroke reference centres, together with the creation of stroke care networks interconnecting these levels of care, in addition to the adaptation of specific rehabilitation programmes. In parallel, the Ministry of Health and Social Policy has picked up the baton and has drafted the stroke strategy within the National Health System (SNS).<sup>10</sup> This was published in November, 2008, with the participation, in addition to the technical committee of stroke experts responsible for its wording, of an institutional committee with representatives of the Regional Governments and the Ministry of Health and Consumer Affairs, as it was then. The strategy aims to homogenize stroke care, committing the Regional Governments' Health Departments to develop and implement these care plans, reflecting the basic strategic lines (primary and secondary prevention of stroke, care in the acute phase, rehabilitation and return to normal life, as well as training

and research) and the necessary indicators for their assessment (these indicators can be extracted from the SNS data system and are combined with specific information compiled using questionnaires agreed within the strategy's monitoring committee).

Although the signing of the National Stroke Strategy by the Inter-Territorial Health Council and, therefore, all the Health Departments of the 17 Regional Governments has implied a major achievement that tends to stimulate the development of specific plans helping to standardize and improve stroke care throughout Spain and accelerate its application in the regions, there is still a lot of work to do in order to achieve the targets set. It is certainly necessary to understand the situation we started from 2008 so as to assess correctly the effects of the implementation of this strategy, which, in addition, proposed an assessment using indicators that can be extracted from the SNS on one hand and, on the other, obtaining specific information through a questionnaire undertaken by this strategy's monitoring committee, with the participation of all the Regions.<sup>10</sup>

In the survey presented here, it is concluded that, in the first half of 2009, there were 39 SUs, albeit unevenly distributed across the country. Thus, it is possible to observe a large concentration of SUs in Madrid and Barcelona, which coincide in being the most active with regard to the number of thrombolytic treatments administered and, also, in having regional stroke care plans in place with the use of 'stroke codes' before the approval of the national strategy.

Although this kind of survey of the status of stroke care in Spain is very important and welcome, it is necessary to make certain considerations in connection with the one published here. First of all, the publication of the data prior to the implementation of the SNS stroke strategy at this stage is a little tardy and there is no analysis of the changes that may have already occurred, whether or not due to its implementation. The data may therefore be considered to be outdated and, to a certain extent, redundant as, when the strategy was drawn up, an analysis was made of the situation in the different regions to reflect the number that had protocols, clinical practice guidelines, clinical routes, stroke codes, protocols for intravenous fibrinolysis, SUs, as well as neurosonology resources, diffusion/perfusion magnetic resonance and neurovascular interventionism.<sup>10</sup> Secondly, although the goal proposed in this survey is to study the situation of stroke care in Spain at the moment the Stroke Strategy was approved (November, 2008), the analysis of the two main variables (SUs and number of patients treated with intravenous thrombolysis) was considered for different periods. Thus, the intravenous thrombolysis data refer to 2008 (prior to the publication of the national strategy), but the analysis of the SUs refers to the first half of 2009, when it might be possible to find a new incorporation, possibly decided prior to the signing of the said strategy.

Also, the analysis of the ratio of stroke unit beds per inhabitant, without taking into account population density and territorial dispersion, is an aspect that may lead to mistaken evaluations as no consideration is given to the fact that some stroke patients may not really be referred to hospitals with an SU, such as when there is no stroke unit available in all the provinces in the region, or when it is located quite far from where the patient has suffered the stroke.

The analysis of thrombolytic dispersion may be influenced by this fact, so it would be useful to reflect not only the absolute figures for treatments performed in a year, which are surprisingly low in some regions, but also the percentage of treatments applied among all the patients with ischaemic stroke arriving at the emergency room. For this reason, the indicator of the number of intravenous thrombolysis performed should be adjusted for the total number of patients with ischaemic stroke arriving at hospitals. In this way, applying this analysis in the Region of Madrid, for example, it has been seen that the implementation of the stroke care plan has managed to increase the percentage of treatments with intravenous fibrinolysis performed at SUs, which was 6.9% in 2008 and 23.3% in 2009,<sup>16,17</sup> clearly reflecting an increase related to the better operation of the stroke code.

It is also necessary to consider the possible biases entailed by conducting a survey of this kind, mainly informational biases as the data provided by different people surveyed might be subject to a certain degree of subjectivity, or to errors of perception or interpretation, and they do not seem to have been sufficiently verified. In this sense, it would be more practical to use records that include all resources available for stroke care and the patients seen.

Another interesting aspect of the survey is that it also collects data on the hospitals performing neurovascular interventionism, an aspect not contemplated among the original goals and recommendations of the National Health System's National Stroke Strategy and due to be included among the new indicators.

Finally, this initiative by the SEN's GEECV, which provides us a 'snapshot' of the situation of stroke care in Spain as of December, 2008, is a source of satisfaction, even though this situation is not very satisfactory and has brought to light some achievements and a lot of shortcomings, with huge territorial inequalities, which means that we have to continue improving. But it is essential for us to perfect our data collection process to achieve a true 'magnetic resonance' image of the stroke care situation in Spain.

Nonetheless, even with all these limitations, this survey is a very good contribution that allows us to understand better the starting point at the end of 2008 so as to be able to analyze the progress made over the last 2 years, so we invite the GEECV to conduct a second study assessing the impact of this National Stroke Strategy and so serve as a stimulus to achieve its more widespread implementation and substantial continuous improvement of the situation with regard to stroke care in Spain, so as to come closer to the recommendations contained in the new PASI document recently published.<sup>11</sup>

## References

1. The European ad Hoc Consensus Group. European Strategies for Early Intervention in Stroke. A report of an ad hoc consensus group meeting. *Cerebrovasc Dis.* 1996;6:315–24.
2. Kjellstrom T, Norrving B, Shatchkute A. Helsingborg Declaration 2006 on European stroke strategies. *Cerebrovasc Dis.* 2007;23:231–41.
3. Declaración de Madrid. Available from: [WWW.sen.es/pdf/declaracion\\_madrid.pdf](http://WWW.sen.es/pdf/declaracion_madrid.pdf)

4. Defensor del Pueblo. Daño cerebral sobrevenido en España. Un acercamiento epidemiológico y sociosanitario; 2005. Available from: [www.defensordelpueblo.es/documentacion/informesmonograficos/INFORMEDANIO.zip](http://www.defensordelpueblo.es/documentacion/informesmonograficos/INFORMEDANIO.zip)
5. Stroke Unit Trialists' Collaboration. Organised inpatient (stroke unit) care for stroke. *Cochrane Database Syst Rev*. 2007;4:CD000197.
6. Fuentes B, Díez Tejedor E. Stroke unit: a cost-effective care need. *Neurología*. 2007;22:456–66.
7. Fuentes B, Díez-Tejedor E. Stroke units: many questions, some answers. *Int J Stroke*. 2009;4:28–37.
8. Gilligan AK, Thrift AG, Sturm JW, Dewey HM, Macdonell RA, Donnan GA. Stroke units, tissue plasminogen activator, aspirin and neuroprotection: which stroke intervention could provide the greatest community benefit? *Cerebrovasc Dis*. 2005;20:239–44.
9. Análisis de la asistencia al ictus en España: Resultados de la Encuesta nacional Ictus del Grupo de Estudio de Enfermedades Cerebrovasculares. *Neurología*. 2011;26:449–54.
10. Ministerio de Sanidad y Política Social. Estrategia en ictus del SNS; 2008. Available from: <http://www.msc.es/organizacion/sns/planCalidadSNS/docs/EstrategiaIctusSNS.pdf>
11. Masjuan J, Álvarez-Sabín J, Arenillas J, Calleja S, Castillo J, Dávalos A, et al. Plan de asistencia sanitaria al ictus II 2010. Documento de consenso elaborado por un Comité ad hoc del Grupo de Estudio de Enfermedades Cerebrovasculares (GEECV) de la Sociedad Española de Neurología (SEN). *Neurología*. 2010, doi:10.1016/j.nrl.2010.05.008.
12. De Lecinana-Cases MA, Gil-Núñez A, Díez-Tejedor E. Relevance of stroke code, stroke unit and stroke networks in organization of acute stroke care—the Madrid acute stroke care program. *Cerebrovasc Dis*. 2009;27 Suppl. 1:140–7.
13. Álvarez Sabin J, Alonso de Lecinana M, Gallego J, Gil-Peralta A, Casado I, Castillo J, et al. Plan for stroke healthcare delivery. *Neurología*. 2006;21:717–26.
14. Asociación Madrileña de Neurología y Servicio Madrileño de Salud. Atención a los pacientes con ictus en la Comunidad de Madrid. Consejería de Sanidad; 2009. Available from: [http://www.madrid.org/cs/Satellite?c=CM\\_Publicaciones\\_FA&cid=1142553237007&idConsejeria=1109266187266&idListConsj=1109265444710&language=es&pagename=ComunidadMadrid%2FEstructura&pid=1109265444699&sm=1109265844004](http://www.madrid.org/cs/Satellite?c=CM_Publicaciones_FA&cid=1142553237007&idConsejeria=1109266187266&idListConsj=1109265444710&language=es&pagename=ComunidadMadrid%2FEstructura&pid=1109265444699&sm=1109265844004)
15. Gallofre M, Abilleira S, Tresserras R, De la Puente ML. The stroke programme of Catalonia. *Med Clin (Barc)*. 2009;133:589–93.
16. Reig G, García-Pastor A, Fuentes B, Alonso de Lecinana M, Calleja P, Serna C, et al. The Madrid stroke-care regional strategy. Early follow-up and evaluation. Preliminary results. *Cerebrovasc Dis*. 2010;29 Suppl. 2:210.
17. Díez Tejedor E, Fuentes Gimeno B, Rodríguez Balo A, Alonso de Lecinana M, Egido J, Gil Núñez A, et al. Advantages of a special stroke assistance network. Madrid Acute Stroke Program. *Cerebrovasc Dis*. 2008;25 Suppl. 2:189.