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Current situation and characteristics of centers specialized in management of aneurysmal subarachnoid hemorrhage in Spain



Situación actual y características de los centros especializados en el manejo de la hemorragia subaracnoidea aneurismática en España

Dear Editor,

Of the different cerebrovascular accidents, non-traumatic subarachnoid hemorrhage (SAH) is considered to be the least common presentation, representing 5%–10% of all cases. In Spain, the incidence ranges between 4.2 and 5.7 cases per 100,000 inhabitants and year, depending on the source.^{1,2}

Spontaneous subarachnoid hemorrhage is characterized by high morbidity and mortality. The most recent studies at the national level report a mortality rate of 24%–27%.^{1,2} The disorder poses an important sociosanitary problem since the affected individuals are typically young, previously healthy, during working age. The years of potential productive life lost are estimated to be similar to those recorded in intracranial hemorrhage or ischemic stroke.³

Due to the complexity of the management of the disease, different international guides underscore the need for close and continuous monitoring of patients with SAH, mainly in Intensive Care Units (ICUs) belonging to tertiary hospitals with multidisciplinary teams and a large volume of patients (>35 patients/year).^{4,5} This has been shown to reduce mortality and complications that can have an impact on patient quality of life.⁶

Within the Spontaneous Subarachnoid Hemorrhage Registry (REMOS study), a survey has been carried out to know the current situation and characteristics of the centers specialized in the management of SAH in Spain. An invitation to participate was sent by e-mail to the members of the Neurointensive and Trauma Working Group of the Spanish Society of Intensive and Critical Care Medicine and Coronary Units (SEMICYUC), which currently has 369 members from 96 centers throughout the country. This same Working Group had already surveyed patients with cerebrovascular disease, but collected different data.⁷ No Ethics Committee approval was requested, given the voluntary and anonymous nature of the

participation and the absence of patient-related data. The survey was open from October 2021 to July 2023, the initially entered data were corroborated at the end of the period. The survey is available as Supplementary material (Supplementary material 1).

The present study analyzes the data obtained from the survey. A descriptive statistical analysis was made and data was reported as number (percentage) or median (interquartile range [IQR]). The response rate was calculated concerning the number of centers represented within the Working Group. In the case of duplicate responses, these were reviewed and, in the event of discrepancies between them, the authors were contacted for clarification.

A total of 56 responses were received, and after removing duplicates, we included information corresponding to 48 hospitals from all over Spain, representing a response rate of 50% (Supplementary material 2). The most extensively represented regions were the Community of Madrid (10 hospitals) and Catalonia (7 hospitals). These were followed by the Valencian Community, Andalusia and Castilla y León, with 5 hospitals each (Fig. 1). The vast majority (98%) were public hospitals.

A little over half of the collaborating centers (52.1%) have more than 800 hospital beds, 33.3% have 500–800 beds, and 14.6% have less than 500 beds. The median number of ICU beds in the participating centers was 30 (IQR 23–39); 10.5% of the centers had 50 or more ICU beds.

Patients with SAH were mainly admitted to polyvalent ICUs (in 70.8% of the centers) or neurotrauma ICUs (22.9%). The annual number of admissions of patients with SAH was less than 25 in 14.6% of the centers, 25–50 in 39.6%, 50–75 in 25%, and over 75 in 20.8%.

With regard to the availability of neurosurgeons in the corresponding centers, 64.6% of the hospitals had at least one neurosurgeon present 24 h a day, while in the rest of the centers, neurosurgeon was on-call from home after 3:00 pm. On the other hand, the interventional neuroradiologist was present from 8:00 am to 3:00 pm, followed by on-call duty, in 81.3% of the centers, while in 10% of the centers this specialist was only present from 8:00 am to 3:00 pm. Only 8.3% of the centers had an interventional radiologist present on an uninterrupted basis.

Exclusion of the aneurysm was performed in the first 72 h in all the centers. In one-half of the hospitals it was carried out on a scheduled basis in the morning hours, and sometimes also in the course of duty during the afternoon. In 23% of the centers, exclusion was performed on an urgent basis, while in 18.8% it was carried out on a scheduled basis in the morning hours. Four hospitals reported other treatment periods: scheduled or urgent intervention on weekends, in some cases urgent and in others scheduled on the follow-

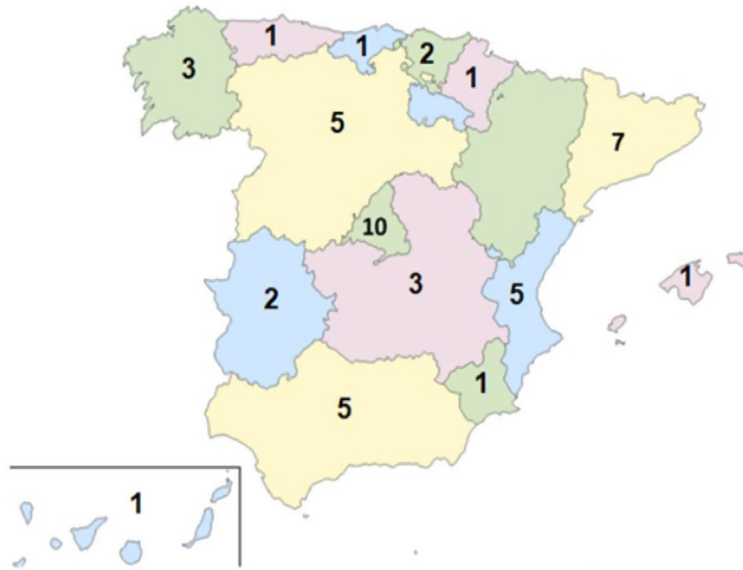


Figure 1 Number of participating centers according to regions.

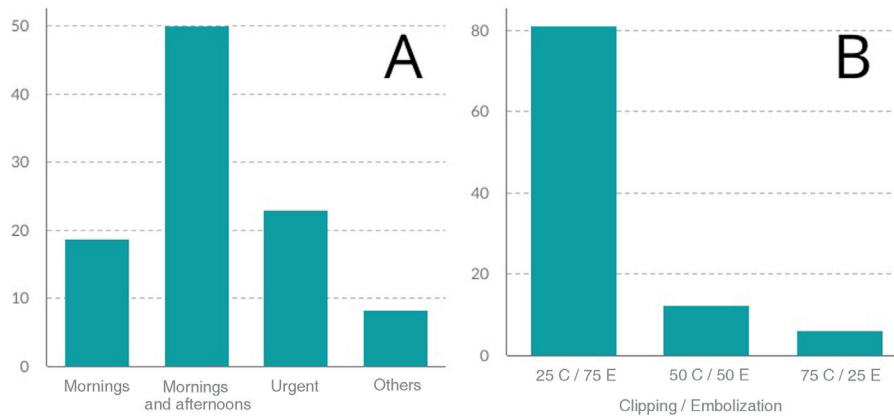


Figure 2 Treatment of SAH in the different centers. A: Timing of treatment; B: type of treatment; C: clipping; E: embolization. Bar chart where height represents the % of centers of the total participating in the study.

ing morning, usually urgent except during nighttime hours, and also at night depending on the type of SAH (Fig. 2A). With regard to the type of treatment, 81.3% of the hospitals performed endovascular treatment three times more often than surgical treatment (clipping 25%/embolization 75%) (Fig. 2B).

The data obtained from the survey describe the hospitals and the ICUs that treat these patients and also the most common types of aneurysmal treatment used. These latter data are consistent with those previously published by the Working Group and the Spanish Society of Neurosurgery.^{7,8}

Conflicts of interest

The authors declare that they have no conflicts of interest.

Financial support

None.

Acknowledgements

The authors thank all the participating centers for their collaboration in this survey.

Appendix A. Supplementary data

Supplementary material related to this article can be found, in the online version, at doi:<https://doi.org/10.1016/j.medine.2024.02.016>.

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