

ICH Score in a Rural Village in the Republic of Argentina

To the Editor:

Spontaneous intracerebral hemorrhage (ICH) is invariably linked to high morbimortality rates, especially if one is aware of the lack of current therapeutical measures that have proven to be efficient enough to have influence on the final outcome. Contrary to the beforesaid, multiple prognosis patterns using different variables such as clinical ones (Glasgow Coma Scale score) and CT scan (hematoma size) predict not only mortality but also functional outcome.

Hemphill et al¹ propose a grading scale, the ICH Score, composed of those independent bad prognosis predictors found in the series that was studied, whereby it should be taken into account that these were fully agreed on in previous reports.

In a cohort of 152 patients, the main conclusion to be taken is that ICH Score proves to be a simple scale that is easy to use and which allows for stratification of risk, evaluating the same by mortality at 30 days from admission, which increases as the score gets higher.

Fernandes et al² retrospectively apply ICH to a series of 393 patients who make up the database of the STICH group in the United Kingdom.

Figure 2 of this letter clearly shows how mortality increases when the ICH Score increases, in accordance with the findings of Hemphill et al.

It should be taken into account that contrary to Hemphill et al, in order to evaluate the final outcome, Fernandes used as “endpoint discharge from neurosurgery” instead of mortality at 30 days.

Jamora et al³ applied ICH Score in 243 patients in the Philippines, confirming the outcome of the group at the University of San Francisco. Figure 1 of this letter shows that high score rates go together with high mortality, although contrary to Fernandez et al, the ICH Score is in close correlation with the functional outcome, evaluated with the Rankin scale modified at discharge from the hospital and a month afterward (Figure 2).

In September 2002, on the occasion of the 13th Argentine Congress of Intensive Care, we presented preliminary data, retrospectively applying the ICH Score to a group of 70 patients. Our neurosurgical department is situated in the town of Junín, a agricultural and livestock area by excellency, known as the “pampa humeda.” On the day of issuance of this letter, the series was composed of 98 individuals. The characteristics of the population group are shown in the Table, the hemorrhage location in Figure 1, and the outcome evaluating mortality at 30 days in Figure 2. No patient with an ICH Score of 0 died, whereas all patients with a score of 5 died. Thirty-day mortality rates for patients with ICH Scores of 1, 2, 3, and 4 were 6.6 %, 34%, 56%, and 70%, respectively, wherein we were able to corroborate once more the previous studies, but in a population socially and culturally different from those described previously. (It should be noted that our country is going through a severe economic, political, and cultural crisis.)

We also believe that the ICH Score contributes to the study of this devastating entity, as it allows the establishment of more homogeneous groups of patients, through which a more unified language can be spoken and more collaborative and multicentric studies may be carried out in the future that help us, especially in evaluating new

treatments or dismissing doubt, for example, when deciding whether surgery is suitable.

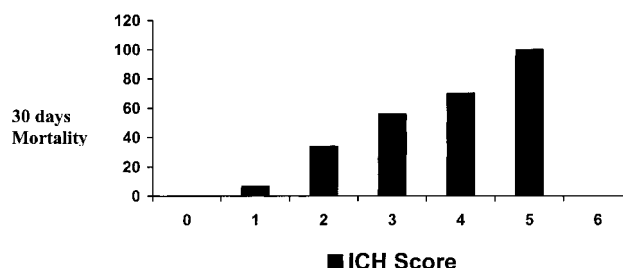


Figure 2. Percentage of patients who died, according to ICH score. Total, n=98 patients.

General Characteristics of the Population Studied

Average age: 67±12 y
Sex (M/F) 54/44
Hypertension: 68.6% of the population
Glasgow Coma Scale postresuscitation: 9±3
Mortality at 30 days: 37.7%

Daniel Agustin Godoy, MD
Neurointensive Care Unit

Andres Boccio, MD
Neurosurgical Department
Sanatorio Junín
Junín, Buenos Aires, Argentina

1. Hemphill JC III, Bonovich DC, Besmertis L, Manley GT, Johnston SC. The ICH Score: a simple, reliable grading scale for intracerebral hemorrhage. *Stroke*. 2001;32:891–897.
2. Fernandes H, Gregson BA, Siddique MS, Mendelow AD. Testing the ICH Score. *Stroke*. 2002;33:1455–1456. Letter.
3. Jamora RDG, Kishi-Generao EM, Bitanga ES, Gan RN, Apaga NNP, San Jose MC. The ICH Score: predicting mortality and functional outcome in an Asian population. *Stroke*. 2003;34:6–7. Letter.

Response

External validation of any prediction or risk-stratification model is essential to ensure generalizability and usefulness beyond the group of patients from which the model was developed. The more groups of patients on which a model is validated, and the more seemingly heterogeneous these groups, the more reassurance is provided that the model can be accurately applied in different contexts. It is with this in mind that we read with interest the letter of Drs Godoy and Boccio. By applying the ICH Score to their unique group of intracerebral hemorrhage patients from rural Argentina, they help test whether cultural differences confound the use of the ICH Score in risk stratification of 30-day mortality after ICH.

It is likely that there are factors not included in the ICH Score that influence mortality after ICH. One set of factors that is often poorly measured in many studies includes cultural and societal issues that influence patient and family preferences for limiting care after neurologic catastrophes. The ICH Score has now been at least partially validated in 3 patient groups (Argentina, United Kingdom, Philippines) geographically remote from the San Francisco Bay Area population from which it was developed. It seems unlikely that patient, family, and physician preferences for ICH care were identical across all 4 cohorts, especially given that racial differences in the use of “do not resuscitate” orders and other aspects related to limiting medical care are recognized in the United States.¹ The fact

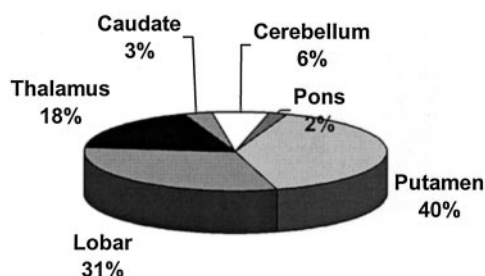


Figure 1. Location of hemorrhage.

that the ICH Score is not confounded by its application to patient populations in widely different regions of the globe is reassuring.

The fact that several groups have reported the usefulness of the ICH Score in their own cohorts suggests that it is easily applied and provides useful information about risk stratification after acute ICH. We encourage others to follow the lead of Godoy and Boccio in validating different clinical grading scales and prediction models, not just the ICH Score, in their own patient cohorts. Some of the most interesting findings may come when clinical grading scales are found valid in some geographic and cultural environments but not others. This type of international collaboration has the potential to provide a window into a challenging but important topic: how cultural aspects of care influence decision-making and outcome prediction in stroke.

J. Claude Hemphill III, MD
David C. Bonovich, MD
S. Claiborne Johnston, MD, PhD
Department of Neurology

Geoffrey T. Manley, MD, PhD
Department of Neurosurgery
University of California, San Francisco
San Francisco, California

1. Shepardson LB, Youngner SJ, Speroff T, O'Brien RG, Smyth KA, Rosenthal GE. Variation in the use of do-not-resuscitate orders in patients with stroke. *Arch Intern Med.* 1997;157:1841–1847.

Response

We are delighted to see that more authors are testing the ICH Score of Hemphill et al.¹ The results observed by Godoy and Boccio are very similar to our own.² In particular we have all (including

Jamora et al³) observed a much lower mortality for patients with an ICH Score of 4.

We agree that there is a need for a method to establish more homogeneous groups of patients so that we will be more successful at evaluating new treatments but we consider that mortality is not the only poor outcome. The method should be able to discriminate between those making a favorable outcome and those making an unfavorable outcome. In particular it should predict those capable of making an independent recovery: that is achieving moderate disability or good recovery on the Glasgow Outcome Score at 6 months postictus.

In addition, we would be concerned if the adoption of the ICH Score discouraged researchers and clinicians from recording the full characteristics of the patient and the hematoma. There is always a danger that the analysis of results will be less sensitive if less information is collected and used.

Barbara A. Gregson, PhD
A. David Mendelow, PhD, FRCSEd
Helen M. Fernandes, FRCS
Department of Neurology
University of Newcastle upon Tyne
Newcastle General Hospital
Newcastle upon Tyne, UK

1. Hemphill JC III, Bonovich DC, Besmertis L, Manley GT, Johnston SC. The ICH Score: a simple, reliable grading scale for intracerebral hemorrhage. *Stroke.* 2001;32:891–897.
2. Fernandes H, Gregson BA, Siddique MS, Mendelow AD. Testing the ICH Score. *Stroke.* 2002;33:1455–1456. Letter.
3. Jamora RDG, Kishi-Generao EM, Bitanga ES, Gan RN, Apage NNP, San Jose MC. The ICH Score: predicting mortality and functional outcome in an Asian population. *Stroke.* 2003;34:6–7. Letter.