WFNS Grade V

see World Federation of Neurosurgical Societies grading for subarachnoid hemorrhage.

GCS 3-6 Motor deficit present or absent.

Correct identification of patients, who might benefit from treatment, remains challenging.

Hoogmoed et al., from the Department of Neurosurgery, Academic Medical Center, Amsterdam, The Netherlands, investigated which disease-related characteristics, present at admission, could identify patients with chance of good outcome.

146 consecutive WFNS grade V SAH patients (2002 - 2013) were included. Demographic and disease-related characteristics were compared between patients with a good outcome (Glasgow outcome scale (GOS) 4 & 5) and a poor outcome (GOS 1-3). Subgroups were made of patients with aneurysm treatment according to outcome; 1) good outcome, 2) poor outcome, with optimal general treatment, 3) poor outcome, general treatment discontinued.

34 of the 146 patients had a good outcome (36% of all treated patients); 16 (47%) of these presented with a GCS score of 3, versus 65 (58%) of patients with a poor outcome ($p = 0.33$). Eleven (33%) patients in the good outcome group presented with pupillary abnormalities; four (12%) even had bilaterally fixed and dilated pupils, versus 49 (46%) in patients with a poor outcome ($p < 0.01$). In 51 patients the aneurysm was not treated; all died.

Over a third of all treated WFNS grade V SAH patients had a good outcome. All patients, in whom the aneurysm was not treated, died. Reliable identification of patients who will reach good outcome, on the basis of symptoms on admission, seems impossible, as these symptoms are not discriminating enough [1)].

Current data show a favorable outcome in up to 50% of patients with World Federation of Neurosurgical Societies (WFNS) Grade V subarachnoid hemorrhage (SAH) and a rather poor prediction of worst cases. Thus, the usefulness of the current WFNS grading system for identifying the worst scenarios for clinical studies and for making treatment decisions is limited. One reason for this lack of differentiation is the use of “negative” or “silent” diagnostic signs as part of the WFNS Grade V definition.

Fung et al therefore reevaluated the WFNS scale by using “positive” clinical signs and the logic of the Glasgow Coma Scale as a progressive herniation score.

The authors performed a retrospective analysis of 182 patients with SAH who had poor grades on the WFNS scale. Patients were graded according to the original WFNS scale and additionally according to a modified classification, the WFNS herniation (hWFNS) scale (Grade IV, no clinical signs of herniation; Grade V, clinical signs of herniation). The prediction of poor outcome was compared between these two grading systems.

The positive predictive values of Grade V for poor outcome were 74.3% (OR 3.79, 95% CI 1.94-7.54)

for WFNS Grade V and 85.7% (OR 8.27, 95% CI 3.78-19.47) for hWFNS Grade V. With respect to mortality, the positive predictive values were 68.3% (OR 3.9, 95% CI 2.01-7.69) for WFNS Grade V and 77.9% (OR 6.22, 95% CI 3.07-13.14) for hWFNS Grade V.

Limiting WFNS Grade V to the positive clinical signs of the Glasgow Coma Scale such as flexion, extension, and pupillary abnormalities instead of including “no motor response” increases the prediction of mortality and poor outcome in patients with severe SAH [2].

We cannot expect favorable outcome for WFNS grade V patients with aMTT over 6.385 sec or more than 2 among 8 areas with MTT >7.0 sec [3].

1)
Hoogmoed J, Coert BA, van den Berg R, Roos YBWEM, Horn J, Vandertop WP, Verbaan D. Early treatment decisions in poor-grade patients with a subarachnoid hemorrhage. World Neurosurg. 2018 Aug 1. pii: S1878-8750(18)31692-9. doi: 10.1016/j.wneu.2018.07.212. [Epub ahead of print] PubMed PMID: 30077026.
2)
Fung C, Inglin F, Murek M, Balmer M, Abu-Isa J, Z'Graggen WJ, Ozdoba C, Gralla J, Jakob SM, Takala J, Beck J, Raabe A. Reconsidering the logic of World Federation of Neurosurgical Societies grading in patients with severe subarachnoid hemorrhage. J Neurosurg. 2016 Feb;124(2):299-304. Epub 2015 Sep 18. PubMed PMID: 26381248.
3)
Sasahara A, Suzuki K, Takahashi Y, Koseki H, Hirota K, Ohbuchi H, Kasuya H. Prognostic assessment of aneurysmal subarachnoid hemorrhage patients with WFNS Grade V by CT perfusion on arrival. World Neurosurg. 2016 May 4. pii: S1878-8750(16)30226-1. doi: 10.1016/j.wneu.2016.04.097. [Epub ahead of print] PubMed PMID: 27155385.