

CORRESPONDENCE

**Persistent Vegetative State and Minimally Conscious State: A systematic review and meta-analysis of diagnostic procedures**

by PD Dr. med. Andreas Bender et al. in issue 14/2015

**Additions**

The diagnosis and differential diagnosis of (persistent) vegetative state, (P)VS, requires special expertise and experience (1). Recently, the term (P)VS has been substituted by the medical term *Unresponsive Wakefulness Syndrome* (UWS), as correctly mentioned by the authors (2). Our aim should be to reduce the unacceptably high rate of misdiagnosis in patients with (P)VS (37–43%) by improving quality management. One can only agree with the statement that above all the diagnosis of VS (UWS) is based on a qualified and standardized clinical neurological examination. Semantically, VS (UWS) and minimally conscious state (MCS) denote two functional transitory syndromes which can be clearly differentiated based on clinical findings. The reliability and validity of the German Coma Remission Scale (KRS) in identifying coma, PVS and MCS in early neurological rehabilitation has convinced specialists, health insurers and politicians (German Social Insurance Code (SGB) IX). With regard to the studies analyzed in the article, we had wished for a more adequate critical discussion on the evaluation and evidence of the way the respective neurological examination procedures were applied and what this meant for the rate of misdiagnosis. Have our recommendations of the European VS guidelines been followed in those studies (1)? Our recommendations have not been discussed in the review (2). Evidence-based, bed-side examination techniques were not mentioned. We recommended a 3-year further training program in a specialized department for VS patients. This qualification has been shown to provide medical-neurological expertise and to reduce the rate of misdiagnosis of VS by precisely allocating the typical symptoms observed with this transitory functional syndrome to the correct diagnosis. Supplementary tables on etiology, the clinical picture of full-blown VS (UWS) and clinical dynamics during the stages of regression are missing (3); these have been compiled with modifications in our guidelines (1) and continue to be valid. In UWS and MCS, not only neurotraumatologists are especially interested in the prognostic relevance of the cause, location and extent of the underlying brain damage and its functional changes over time, apart from patient age. Additional information about functional imaging is provided by Zakharova et al. (4).

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**Conflict of interest statement**

The authors declare that no conflict of interest exists.

**In Reply:**

We like to thank our colleagues who have played a crucial role in shaping our understanding of PVS over the past decades for their important additions. Our focus was on the systematic meta-analysis of studies describing technical methods that help to differentiate between PVS and MCS (1). Unfortunately, we could not discuss all aspects and all important preparatory work related to this complex topic—not least because of the limited space available. We share the view that the German Coma Remission Scale (KRS) is an important instrument for evaluating the clinical course of patients with disturbances of consciousness. The use of an appropriate clinical examination method to differentiate between PVS and MCS was one key inclusion criterion for our analysis. The majority of the studies we identified were from non-German-speaking countries and used the Coma Recovery Scale-Revised (CRS-R) as an evidence-based, bedside examination method with a good test quality profile and clearly operationalized differentiation between PVS and MCS (2). However, the use of CRS-R was by no means compulsory. It is crucial to use internationally established assessment tools to advance this area of research in Germany, too; in fact, this approach has already been adopted by German-speaking working groups (3). We have critically discussed (1) that the use of the CRS-R is associated with significant methodological risks and evaluated the quality of the studies especially based on the clinical examination method used (eTable in the article). To reduce the rate of clinical misdiagnosis, we firmly support the expert group’s call for improved advanced training and continuing education for physicians in the assessment of disturbances of consciousness. Major neurological textbooks should have a special chapter exclusively dedicated to this topic. It should be ensured that seeing and managing this type of patients in a clinical setting is an integral part of specialist training. DOI: 10.3238/arztebl.2015.0680b

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