

WHAT'S NEW IN INTENSIVE CARE



# Updated nomenclature of delirium and acute encephalopathy: statement of ten Societies

Arjen J. C. Slooter<sup>1\*</sup>, Wim M. Otte<sup>2</sup>, John W. Devlin<sup>3,4</sup>, Rakesh C. Arora<sup>5,6</sup>, Thomas P. Bleck<sup>7</sup>, Jan Claassen<sup>8</sup>, Matthew S. Duprey<sup>3,4</sup>, E. Wesley Ely<sup>9,10</sup>, Peter W. Kaplan<sup>11</sup>, Nicola Latronico<sup>12</sup>, Alessandro Morandi<sup>13,14</sup>, Karin J. Neufeld<sup>15</sup>, Tarek Sharshar<sup>16</sup>, Alasdair M. J. MacLulich<sup>17</sup> and Robert D. Stevens<sup>18</sup>

© 2020 The Author(s)

## Segregation of published research

Patients with an acute illness frequently acquire an acute, global disturbance in cognition variably referred to as *delirium*, *encephalopathy*, *acute confusional state*, *acute brain dysfunction*, *acute brain failure*, and *altered mental status* [1]. Although these different terms may have been perceived as distinct clinical entities [2], evidence to support such distinctions is lacking.

Acute disturbances in cognition are particularly prevalent among individuals admitted to the intensive-care unit [3]. These disturbances have been linked to predisposing and triggering factors [4], and have been independently associated with adverse short- and long-term outcomes, including higher mortality and chronic cognitive impairment [5, 6]. While progress has been made in the detection of this problem, research is needed to identify effective interventions for prevention and treatment. A rational approach to nomenclature represents an important basis to enable such advances.

A definition of delirium is provided in the 5th version of the Diagnostic and Statistical Manual (DSM-5) of the American Psychiatric Association [7] and in the 11th edition of the International Statistical Classification of Diseases and Related Health Problems (ICD-11) [8]. Encephalopathy is a generic term that has been used to describe a global disturbance in brain function. However, the terms *acute encephalopathy*, *acute confusional state*, *acute brain dysfunction*, *acute brain failure*, and *altered mental status* lack uniform definitions and are not present in formal diagnostic systems. Our analysis focuses on delirium and acute encephalopathy, as these are the most frequently used terms.

We hypothesized that published research on delirium and encephalopathy is highly segregated, and that this segregation would be linked to the clinical discipline of investigators. We conducted a systematic search (see details in the Supplementary Materials) which led to three findings. First, journals on clinical neurology, neurosciences, or general or internal medicine published significantly more articles with ‘encephalopathy’ in the title, whereas journals associated with geriatrics, gerontology, psychiatry, psychology, intensive-care medicine, or anaesthesiology published significantly more delirium-titled articles ( $P < 0.001$ ). Second, articles with ‘encephalopathy’ in the title rarely (1%,  $n = 1$  of 100 randomly selected articles) mentioned ‘delirium’ in the text, and conversely articles with ‘delirium’ in the title used the word ‘encephalopathy’ in not more than 2% of publications ( $n = 2$  out of 100). Third, almost all citations in the delirium and encephalopathy literature (98.77%,  $n = 36,729$ ) were between papers with matching terms in the titles (i.e., delirium-titled articles citing other delirium-titled articles

\*Correspondence: a.slooter-3@umcutrecht.nl

<sup>1</sup> Department of Intensive Care Medicine and UMC Utrecht Brain Center, University Medical Center Utrecht, Utrecht University, Room F06.149, PO Box 85500, 3508 GA Utrecht, The Netherlands  
Full author information is available at the end of the article

Societies: American Academy of Neurology (AAN), American Delirium Society (ADS), European Academy of Neurology (EAN), European Delirium Association (EDA), European Geriatric Medicine Society (EuGMS), European Society of Anaesthesiology (ESA), European Society of Intensive Care Medicine (ESICM), Neurocritical Care Society (NCS), Society of Critical Care Medicine (SCCM), and Società Italiana di Anestesia Analgesia Rianimazione e Terapia Intensiva (SIAARTI)