Results: Data from 23 publications and 345 patients (Unresponsive Wakefulness Syndrome, UWS=272; Minimally Conscious State, MCS=73) were extracted and included in the meta-analysis. We found a pooled mortality rate of 30% and a rate of full consciousness recovery of 14%, within a median time of 12 months after injury. Younger age, diagnosis of MCS vs. UWS, and higher Coma Recovery Scale-Revised total score at study entry were associated with a lower likelihood of mortality. These same variables, together with shorter time from injury, were associated with recovery of full consciousness.
Conclusion: Although anoxic aetiology usually leads to a poor outcome, patients with pDoC have a relatively low mortality rate and a chance of late recovery of consciousness 6 months after injury. Specific predictive factors may guide the long-term management of anoxic patients with pDoC.
Disclosure: This study was supported by Italian Ministry of Health-Ricerca Corrente 2019-2021 and by European Union's HORIZON2020-MSCA n°778234-DoCMA project.

EPR-056

Global Neurophysiological Measures in Disorders of Consciousness: a Meta-Analysis

M. Meys[1], Z. Wang[1], S. Abagnale[1], B. Kaan OK[1], N. Alnagger[1], M. Bardiau[2], C. Beaudart[3], S. Laureys[1], O. Gosseries[1], A. Thibaut[1], A. Sala[1], J. Annen[1]
[1]Coma Science Group, GIGA-Consciousness, University of Liège, Liège, Belgium, [2]ULiège Library, University of Liège, Liège, Belgium, [3]Division of Public Health, Epidemiology and Health Economics, University of Liège, Liège, Belgium

Background and aims: Here, we aim to quantitatively synthesise existing electroencephalography (EEG), magnetoencephalography (MEG) and functional near-infrared spectroscopy (fNIRS) findings in patients with disorders of consciousness (DoC), including the unresponsive wakefulness syndrome (UWS) and minimally conscious state (MCS).
Methods: In January 2022, we searched MEDLINE, Scopus and Embase for resting-state studies, involving adults with prolonged DoC, diagnosed with a validated behavioural scale. Two referees independently screened studies and extracted useful statistics. Separate random effect meta-analyses were conducted to compare global metrics between controls and DoC patients. The full protocol is available on PROSPERO (CRD42022327151).
Results: As of January 2023, from 3563 unique studies, 21 EEG studies were eligible for inclusion, spanning 240 controls, 499 UWS and 508 MCS patients (Figure 1). We here report only measures appearing in three or more studies. Power and connectivity in delta and alpha bands consistently differed between controls and DoC, along with power in the beta band. Still, studies' heterogeneity was considerable and larger for UWS than MCS. Power in delta and alpha bands, as connectivity in alpha band, also differed between UWS and MCS with medium effect sizes (Figure 2). UWS and MCS showed different power and participation coefficient in theta and connectivity in beta bands, all with small effects.

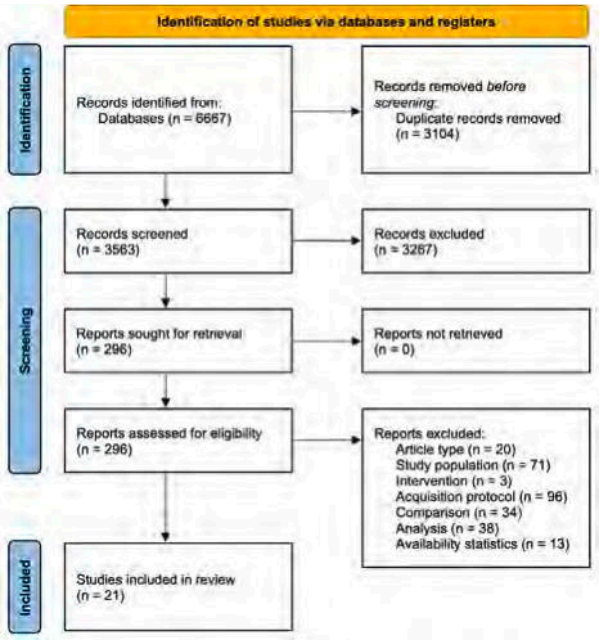

Figure 1: PRISMA flow diagram. Journal articles and conference papers were considered in the literature search, excluding case-studies.

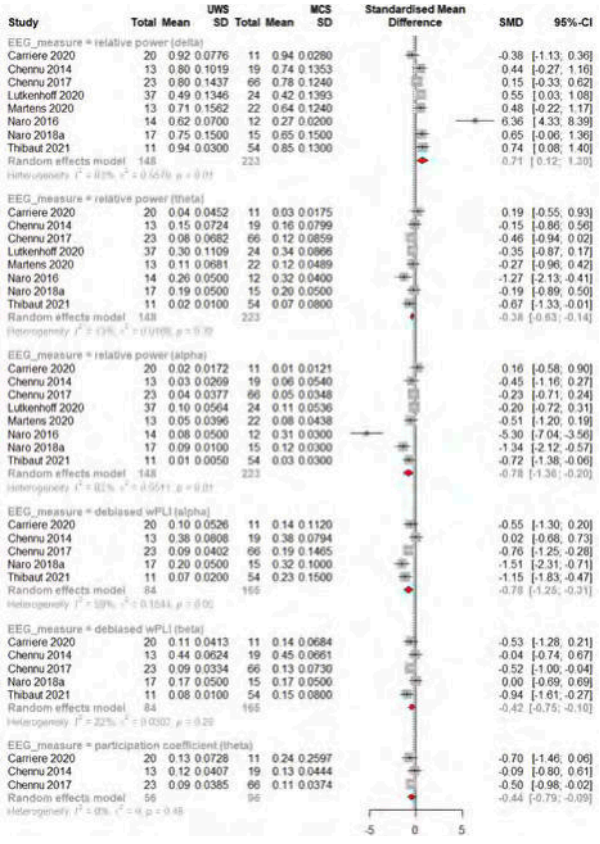

Figure 2: Significant results of random effect meta-analyses for EEG measures, investigating differences between UWS and MCS.

Conclusion: Delta and alpha measures consistently differed between UWS and MCS, indicating these as possibly interesting measures for diagnostic purposes. The large variability observed in UWS studies supports the notion of UWS heterogeneity, with part of UWS patients likely presenting residual brain activity, more similar to MCS.
Disclosure: Nothing to disclose.

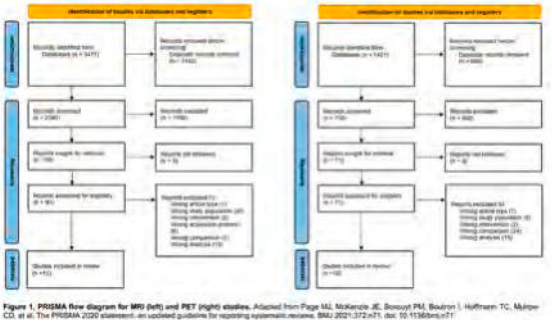

Fig. 1

EPR-057

Brain alterations in disorders of consciousness: a coordinate-based meta-analysis

A. Sala[1], B. Kaan Ok[1], N. Alnagger[1], S. Abagnale[1], M. Meys[1], Z. Wang[1], M. Bardiau[2], S. Eickhoff[3], M. Tettamanti[4], S. Laureys[1], O. Gosseries[1], A. Thibaut[1], J. Annen[1]

[1]Coma Science Group, GIGA-Consciousness, University of Liège, Liège, Belgium, [2]ULiège Library, University of Liège, Liège, Belgium, [3]Institute of Neuroscience and Medicine, Brain, and Behaviour (INM-7), Research Centre Jülich, Jülich, Germany, [4]Department of Psychology, University of Milano-Bicocca, Milano, Italy

Background and aims: We aim to shed light on the localization of brain alterations in Disorders of Consciousness (DoC), by quantitatively synthesizing existing structural, functional and molecular evidence in patients with unresponsive wakefulness syndrome (UWS) and minimally conscious state (MCS).
Methods: In January 2022, we used MEDLINE, Scopus and Embase to search for resting-state magnetic resonance and positron emission tomography studies, involving adults with prolonged DoC, diagnosed based on a validated behavioural scale. Two referees independently screened studies and extracted coordinates of whole-brain, voxel-based comparisons between groups of patients and controls or patients subgroups. Coordinate-based meta-analysis was performed via activation likelihood estimation. The full protocol is available on PROSPERO (CRD42022327151).
Results: As of January 2023, of the resulting 2798 studies, 33 studies met criteria for inclusion, for a total of 454 UWS and 572 MCS patients and 277 controls (Fig. 1). The primary analysis, including studies comparing DoC patients vs. controls, revealed brain alterations in cortical regions, medially (precuneus, posterior/middle cingulate gyrus) and laterally (angular gyri, inferior parietal lobules), and in subcortical regions (dorsomedial thalami and head of caudate nuclei) (Fig. 2). Contrast analysis of UWS and MCS results revealed stronger brain alterations in UWS in the precuneus, posterior/middle cingulate gyrus, right angular gyrus and inferior parietal lobule, and dorsomedial thalami.

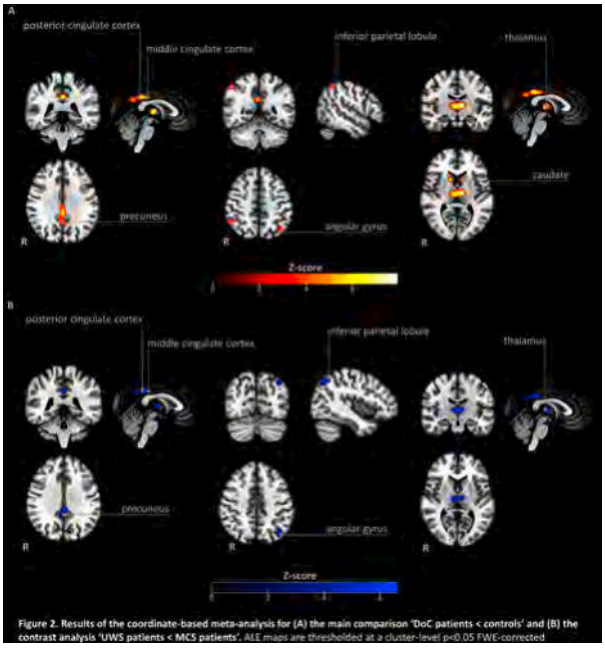

Fig. 2

Conclusion: This meta-analysis provides the most extensive evidence to date on brain alterations in DoC, pointing at a specific set of regions, at cortical and subcortical level, as anatomical basis for DoC, with stronger alterations in UWS compared to MCS.
Disclosure: Nothing to disclose.