(Abstract) Towards a better understanding of what palliative sedated patients experience. A transdisciplinary mixed methods study protocol.

Conference Paper · June 2017

CITATIONS
0

READS
82

8 authors, including:

Stefaan Six
Vrije Universiteit Brussel
17 PUBLICATIONS **9** CITATIONS
SEE PROFILE

Steven Laureys
University of Liège
741 PUBLICATIONS **33,881** CITATIONS
SEE PROFILE

Jan Poelaert
Vrije Universiteit Brussel
240 PUBLICATIONS **3,133** CITATIONS
SEE PROFILE

Peter Theuns
Vrije Universiteit Brussel
55 PUBLICATIONS **706** CITATIONS
SEE PROFILE

synaptogenesis, neurogenesis, etc.) and keeps changing throughout a human being?s life. This capacity of brain to be flexible and changeable is referred to as neuroplasticity. It is the process of ongoing changes in neural pathways that occur throughout life. Neuroplasticity refers to the idea that the brain is capable of changing its functions in response to the environment, actions, thinking, emotions, behavior, as well as injury. The dynamic impact of consciousness (in the form of subjectivity, intentionality, self-awareness and will) on brain never stops (Askenasy and Lehmann, 2013). Conscious neuroplasticity refers to the process whereby the functioning of the brain is improved through deliberate and willingly performed cognitive, emotive and behavioral actions. It allows us to consciously control how we want our brains to work by controlling our thoughts and emotions. Conscious neuroplasticity can be made possible through a number of measures including selfless community service, healthy socialization, value oriented environment, positive-attitude, mindfulness, physical, mental, spiritual activeness (meditation, mindfulness) etc. The present paper elaborates the concept of neuroplasticity and conscious neuroplasticity, bringing forth the need for efforts to strengthen conscious neuroplasticity. It also describes how some spiritual communities and organizations in the world have been pursuing conscious neuroplasticity and are enjoying its positive effects. Conscious neuroplasticity oriented model for raising individual and group consciousness has also been discussed in the paper. **P1**

2.09 Coma and vegetative states

2.10 Anesthesia and pharmacology

124 Anesthetic and Neuronal Protein Assembly - An In-vitro Study Pushpa Sahni <deipushpasahni@gmail.com> (Chemistry, Dayalbagh Educational Institute , Agra, Utter Pradesh India)

Despite a century of sustained research, brain scientists remain ignorant of the workings of the three pound organ that is the seat of all conscious human activity. Many have tried to attack the problem by examining the nervous systems of simpler organisms. The difficulty in establishing a link between biology and behaviour in humans is still more acute. There are techniques which are used to record the activity of single neurons in living humans. Such breakthrough methods could, in principle, begin to bridge the gap between the firing of neurons and cognition: perception, emotion, decision making and ultimately, consciousness itself. Deciphering the exact patterns of brain activity that underlie thinking and behavior will also provide critical insights into what happens when neural circuitry malfunctions in psychiatric and neurological disorders- schizophrenia, autism, Alzheimer's or Parkinson's. Anesthetics are also known to inhibit neuronal fast anterograde axoplasmic transport (FAAT) in a reversible and dose-dependent manner, but the precise mechanism by which anesthetic prevent consciousness remains unknown largely because the mechanism by which brain physiology produces consciousness is unexplained. In the present study we have used circular dichroism spectroscopy and confocal laser scanning microscopy to see the effect of propofol on the assembly of neuronal tubulin and actin together and probed into the changes of their secondary structures. In future, we will also try to maintain the conditions required for quantum brain structures relevant to consciousness. **C4**

125 Towards A Better Understanding of What Unconscious Palliative Sedated Patients Experience. A Transdisciplinary Mixed Methods Study Protocol. Stefaan Six , Steven Laureys; Jan Poelaert; Peter Theuns; Johan Bilsen; Marijke De Couck; Liza Musch; Reginald Deschepper <stefaan.six@vub.ac.be> (Mental Health And Wellbeing Re, Vrije Universiteit Brussel, Brussels, Belgium)

BACKGROUND In case of untreatable suffering at the end of life, palliative sedation may be chosen to assure comfort by reducing the patient's level of consciousness. An important question here is whether such sedated patients are certainly completely free of pain. Because these patients cannot communicate anymore, caregivers have to rely on observation to assess the patient's comfort. Recently however, more sophisticated techniques from the neurosciences (fMRI, EEG) have shown that sometimes consciousness and pain is undetectable with these traditional

behavioral methods. Therefore we urgently need a more reliable way of assessment by combining existing observational scales, subjective assessments of caregivers and family and neuroimaging techniques. Each method has its potential and limitations, but together they can substantially increase the reliability of our assessment. AIM The aim of this study is to better understand how unconscious palliative sedated patients experience the last days of their life and to find out if they are really free of pain. METHODS In this study we want to observe 40 patients starting with initiation of palliative sedation until death. Assessment of comfort based on behavioral observations will be related with the results from a NeuroSense monitor, an EEG-based brain monitor used for evaluation of the adequacy of anesthesia and sedation in the operating room and an ECG-based Analgesia Nociception Index (ANI) monitor, which informs about the comfort or discomfort condition of the organism, based on the parasympathetic tone (including calculation of ANI). Additionally, we will investigate whether changes of these measures can be linked to changes in the patients' experience as observed by caregivers and relatives, especially in the last moments of life. An innovative and challenging aspect of this study is its qualitative approach, implying all the different types of data will be used to link "objective" and "subjective" data to achieve a holistic understanding of the study topics. The following data will be collected: assessment of pain/comfort by the patients themselves before loss of consciousness due to deep continuous sedation (if possible) by scoring a VAS scale; brain function monitoring (NeuroSense monitor); monitoring of parasympathetic tone (ANI monitor); assessment by caregivers on 3 VAS scales (pain, awareness, communication); relatives' perception of the quality of the dying process on 3 VAS scales (idem); assessment by 2 trained investigators using observational scales; observation video and audio registration. DISCUSSION Measuring pain and awareness in non-communicative dying patients is both technically and ethically challenging. ANI and EEG have shown to be promising technologies to detect pain that otherwise cannot be detected with the "traditional" methods. Although these technologies have the potential to provide objective quantifiable indicators for distress and awareness in non-communicative patients, they have not yet been used to check whether the current assessments for non-communicative patients are reliable. First results are expected mid-2017. **P2**

126 Changes of Serum Lipid Profiles In Neonatal Monkeys Associated with Anesthetic-induced Neurotoxicity Cheng Wang , Cheng Wang3, Chunyan Wang2, Xianlin Han2, Fang Liu3, Qiang Gu3, Shuliang Liu3, Tucker A. Paterson3, Merle G. Paule3, Joseph P. Hanig4 And William Slikker1 <cheng.wang@fda.hhs.gov> (Division Of Neurotoxicology, National Center for Toxicology Research; FDA, Jefferson, AR)

1Office of the Director, National Center for Toxicological Research (NCTR)/FDA; 2Center for Metabolic Origins of Disease, Sanford Burnham Prebys Medical Discovery Institute at Lake Nona, Orlando, FL 32827; 3Division of Neurotoxicology, NCTR/FDA, Jefferson, AR 72079; 4Center for Drug Evaluation and Research/FDA, Silver Spring, Maryland 20993 It has been reported that the commonly used general anesthetics such as sevoflurane induce neurotoxicity in developing brains. However, there has been limited research evaluating whether and how anesthetic agents affect bio-lipids, the most abundant components of the brain other than water. Thus, assessing lipid profiles, especially from blood samples, may assist in the early detection of the neurotoxic effects that can be associated with general anesthesia. Postnatal day (PND) 5 or 6 monkeys were randomly assigned to control (room-air; n=4) and sevoflurane-exposed (n=4) groups. Sevoflurane was delivered using an agent-specific vaporizer for 9 hours at a clinically-relevant concentration of 2.5%. Blood samples were collected at 0, 2, 4, 8 and 9 h during exposure in both the control and sevoflurane-exposed groups. Lipid extractions and analyses were performed using a mass spectrometer. 4-h after completion of anesthetic exposures, frontal cortical tissue was collected for histochemical and Western blot analyses. Serum lipidomic analysis demonstrated that the levels of critical lipid components including acylcarnitines, phosphatidylcholines (PC) and phosphatidylethanolamines (PE) were significantly decreased during prolonged exposure to sevoflurane. In contrast, the amounts of triglyceride (TAG) and 4-hydroxynonenal were increased to abnormally high levels in sevoflurane-exposed monkeys. Consistently, histochemical staining and Western blot analyses of Bax protein revealed increased neuronal apoptotic damage after