Abstract NVKNF Najaarsvergadering ‘Wetenschap’

**EEG reactivity testing in unconscious patients; a systematic review of methods and definitions.**

M.M. Admiraal, MSc., dr. A.F. van Rootselaar and dr. J. Horn

**Objective:** EEG reactivity testing is often presented as a clear-cut element of electrophysiological testing. Absence of EEG reactivity is generally considered an indicator of poor outcome, especially in patients after cardiac arrest. However, guidelines do not clearly describe how to test for reactivity and how to evaluate the results. In a quest for clear guidelines, we performed a systematic review aimed at identifying testing methods and definitions of EEG reactivity.

**Methods:** We systematically searched the literature between 1970 and May 2016. Methodological quality of the studies was assessed using the Quality of Prognosis Studies (QUIPS) tool. Quality of the descriptions of stimulus protocol and reactivity definition was rated on a four category grading scale based on reproducibility.

**Results:** 39 Articles were included and we found that protocols for EEG reactivity testing vary greatly and descriptions of protocols are almost never replicable. Furthermore, replicable definitions of presence or absence of EEG reactivity are never provided.

**Conclusion:** In order to draw firm conclusions on EEG reactivity as a prognosticator, reports should include a precise stimulation protocol and reactivity definition.

**Future research:** In order to gain more insight in the prognostic value of EEG reactivity in patients after cardiac arrest, we started a prospective observational multicenter study. EEG reactivity is tested twice a day according to a strict protocol. With this study we expect to facilitate future guideline formation.