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Assessment of localisation to auditory stimulation in post-comatose states: use the patient's own name

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Objectives: At present, there is no consensus on what auditory stimulus should be employed for the assessment of localization to sound in patients recovering from coma. The aim of this study was to investigate behavioral responses to auditory localisation using the patient's own name as compared to a meaningless sound (i.e. ringing bell) in patients with disorders of consciousness.
Methods: Eighty-six post-comatose patients (67 men; mean age 46±17SD) diagnosed with a vegetative state/unresponsive wakefulness syndrome (n=47) or a minimally conscious state (n=39) from traumatic (n=52) and non-traumatic (n=34) etiology were prospectively included in the study. Median time between injury and assessment was 5 months (IQR: 3 – 13 months). Localisation of auditory stimulation (i.e., head or eyes orientation toward the sound) was assessed using the patient's own name as compared to a ringing bell. Statistical analyses used binomial testing (at $p<0.05$, corrected for multiple comparisons).
Results:. 37 (43%) out of the 86 studied patients showed localisation to auditory stimulation. More patients (n=34, 40%) oriented the head or eyes to their own name as compared to sound (n=20, 23%). Localisation preference was different according to the diagnosis (i.e. minimally conscious patients showed more responses to their own name as compared to vegetative/unresponsive patients) but it was not different depending on etiology or time since injury.
Conclusion: When assessing auditory function in disorders of consciousness, using the patient's own name is here shown to be more suitable to elicit a response as compared to neutral sound. Our findings emphasize the clinical importance of using the patient's own name when performing bedside testing of localisation to sound, adding to previous studies stressing the importance of using auto-referential stimuli in disorders of consciousness (i.e., the use of a mirror in the assessment of visual tracking).