Animal Presence Modulates Frontal Brain Activity of Patients in a Minimally Conscious State: A Pilot Study

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Integrating animals into therapy is applied increasingly in patients in a minimally conscious state (MCS). This pilot study investigates the effect of animal presence on frontal brain activity in MCS patients compared to healthy subjects. O; 2; HB, HHb and tHb of two MCS patients and two healthy adults was measured in frontal cortex using functional near-infrared spectroscopy during three sessions with a live animal and three sessions with a mechanical toy animal present. Each session had five phases: (1) baseline, (2) watching animal, (3) passive contact, (4) active contact, (5) neutral. Data were descriptively analysed. All participants showed the largest hemodynamic response during direct contact with the live or toy animal compared to ”baseline” and ”watching.” During active contact, three of the four participants showed a stronger response when stroking the live compared to the toy animal. All participants showed an inverted signal with higher HHb than O; 2; Hb concentrations while stroking the live or toy animal. Animal contact leads to a neurovascular reaction in both MCS patients and healthy subjects, indicating elevated neural activity in the frontal cortex. We conclude that while a toy animal can elicit attention processes, active contact to a living animal is combined with emotional processes.
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