

EFFECTS OF MULTIMODAL SENSORY STIMULATION ON THE RECOVERY FROM COMA: A SYSTEMATIC REVIEW

Background

Multimodal Sensory Stimulation (MSS) is an intervention that may support recovery from coma. It can be performed as a part of nursing care in the intensive care unit. Recent reviews on the effectiveness of this intervention included studies with different designs, ranging from pre-posttests to randomized controlled trials, and there was only low agreement regarding the studies to be included [1,2,3,4,5]. The current knowledge on MSS, therefore, remains incomplete and lacks a systematization that would allow for an integration of results in meta-analyses.

Aim(s)

To determine the effect of MSS on the level of consciousness among adult patients in the process of recovery from coma in comparison to routine care.

Methods

We followed PRISMA guidelines [6] and searched PubMed, CINAHL, PsycINFO, Web of Science and the Cochrane Central Register of Controlled Trials. The first author assessed eligibility of potential studies and extracted data. Studies that met the criteria of the review's aim were included. Quality of included studies was assessed independently by two authors according to the evaluation criteria of the Revised Cochrane risk-of-bias tool for randomized trials (RoB2) [7].

Results

14 studies were included in this review. One study investigated recovery from coma after stroke, the others recovery after traumatic brain injury. Of the latter studies, 6 investigated the effect of MSS applied by a family member trained by nurses. In 3 of these studies only tactile and auditory stimulation was applied, while in the others, more senses were stimulated. 7 further studies with patients after traumatic brain injury investigated the effect MSS when applied by health professionals. All except one addressed four or more senses. Length of treatment ranged from 6 – 14 days. The level of consciousness at the end of treatment was mainly assessed with the Glasgow Coma Scale [8], apart from 2 studies that used the Coma Recovery Scale-Revised [9]. All studies with MSS applied by family members found a significantly higher level of consciousness at the end of treatment in comparison to usual care. MSS applied by health professionals showed similar results in comparison to usual care, except when only 2 senses were addressed.

Discussion

Most studies did not report on the side effects of MSS that may occur during the critical phase of treatment and to what extent they resulted in a deviation from the investigated intervention. Analyses of results were done per-protocol and only limited information was available on reasons for dropout.

Implications and future perspectives

MSS in the acute phase of coma after traumatic brain injury can have positive effects on recovery, but possible side effects need further investigation. Its effect on coma after stroke and in patients who are slow to recover from coma and need long-term treatment should be studied in the future.

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