Nonpharmacological intervention for agitation in dementia: a systematic review and meta-analysis

Kong EH, Evans LK, Guevara JP

CRD summary
This well-conducted review concluded that sensory interventions were the only type of non-pharmacological intervention in older adults with dementia to show beneficial effects in reducing agitation. These conclusions are likely to be reliable but, as the authors acknowledged, should be interpreted with some caution given the small sample sizes and variability in the interventions.

Authors' objectives
To determine the effectiveness of non-pharmacological interventions for agitation in older adults with dementia.

Searching
MEDLINE, CINAHL, PsycINFO, AgeLine, EBM Reviews, Cochrane Central Register of Controlled Trials (CENTRAL), ACP Journal Club and ISI index were searched from inception to June 2004. Search terms were reported. References of review articles and potentially relevant studies were screened. The review was restricted to published studies in English or Korean.

Study selection
Randomised controlled trials (RCTs) that assessed non-pharmacological interventions for agitation in patients with dementia were eligible for inclusion. Eligible trials had to use a published scale to assess agitation as an outcome and report sufficient information to determine the effects of therapy. Both parallel group and cross-over trials were eligible.

Interventions assessed were sensory interventions (aromatherapy, thermal bath, calming music and hand massage), social contact (simulated presence, pet therapy), activities (rocking chair therapy, therapeutic recreational activities), environmental modification (morning bright light therapy), carer/caregiver training (behaviour management techniques, abilities focused morning care), combination therapy (stimulation retreat program) and behaviour therapy (activities of daily living intervention and way finding intervention). Comparator interventions included placebo, usual care and no intervention. Intervention duration ranged from 10 minutes to one year. The majority of participants were women resident in nursing homes or other care facilities.

Two reviewers independently assessed studies for inclusion; disagreements were resolved through consensus between three reviewers.

Assessment of study quality
Two reviewers independently assessed trial quality using the Cochrane guidelines for assessing allocation concealment; withdrawals were also assessed. Disagreements were resolved through consensus between three reviewers.

Data extraction
Two reviewers independently extracted data using a pre-designed form. Results were extracted as means and standard deviations and used to calculate standardised mean differences (SMD) with 95% confidence intervals (CIs). Trial authors were contacted for further information where necessary. If more than one intervention was assessed, the most effective intervention was selected for extraction. If results were reported for more than one time point, the time closest to the endpoint of the intervention was selected.

Methods of synthesis
Summary standardised mean differences were estimated using random-effects models. Heterogeneity was assessed using the $X^2$ and $I^2$ statistics. Sensitivity analysis was conducted by excluding trials of lower methodological quality.

Results of the review
Fourteen trials were included in the review (n=586 patients); seven were parallel group RCTs and seven were cross-over RCTs. All but one of the trials provided a clear description of withdrawals. Four trials adequately concealed treatment allocation. In two trials treatment allocation was inadequate; treatment allocation was unclear in the remaining trials.

Agitation showed a significant, moderate reduction among three RCTs (n=135 patients) of sensory interventions (SMD -1.07, 95% CI -1.76 to -0.38), but there was significant heterogeneity (p=0.04, $\Gamma^2$=68%). Results were similar when restricted to the two RCTs that reported adequate treatment allocation concealment. There was no significant difference between intervention and control for social contact (two RCTs), activity interventions (three RCTs), environmental modification (one RCT), carer/caregiver training (two RCTs), combination therapy (one RCT), or behavioural therapy (two RCTs).

**Authors' conclusions**

Sensory interventions were the only type of non-pharmacological intervention in older adults with dementia that showed beneficial effects in reducing agitation.

**CRD commentary**

The review addressed a focused question supported by clearly defined inclusion criteria. The literature search was appropriate for published studies, but restriction of the review to published English or Korean studies meant that there was a possibility of language and publication bias. Appropriate steps were taken to minimise bias and errors at all stages of the review process. Trial quality was assessed using some relevant criteria and considered in the analysis, but the assessment of other methodological features, such as blinding, may have provided a more informative summary of trial quality. Appropriate methods were used to pool data within relevant trial subgroups. Results were clearly presented using forest plots.

The authors' conclusions are supported by the data and are likely to be reliable but, as the authors acknowledged, should be interpreted with some caution given the small sample sizes and variability in the interventions.

**Implications of the review for practice and research**

**Practice:** The authors did not state any implications for practice.

**Research:** The authors stated that further methodologically rigorous trials are needed to confirm the finding of a beneficial effect of sensory intervention on agitation in patients with dementia. Future studies should also address the necessary duration of therapy to achieve clinically meaningful results and to assess the long-term effects of non-pharmacological interventions.

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