Treatment interventions in nursing home residents with urinary incontinence: a systematic review of randomized trials


CRD summary
This review reported that prompted voiding, alone or plus exercise, appeared to result in modest short-term improvements in urinary incontinence among nursing home residents; antimuscarinic drugs may help those who are unresponsive to prompted voiding. Overall, variations between the trials and their outcome data, plus limitations in their size and quality, suggest the authors' conclusions may not be reliable.

Authors' objectives
To assess the safety and efficacy of treatments for urinary incontinence in nursing home residents.

Searching
MEDLINE and the Cochrane Central Register of Controlled Trials were searched for articles published in English from January 1985 to May 2008. Search terms were reported. Reference lists of retrieved studies and reviews were screened for additional studies, as were the proceedings of the Third International Consultation on Incontinence.

Study selection
Randomised controlled trials (RCTs) comparing interventions aimed at improving urinary incontinence in nursing home residents or those in long-term institutionalised care with placebo or active controls, were eligible for inclusion in the review. Eligible outcomes included patient/provider reported urinary incontinence incidence or severity, percentage of patient examinations reporting incontinence, proportion of continent toileting attempts, validated urinary incontinence symptom scores, and adverse events.

Included trials assessed either pharmacological (e.g. antimuscarinic drugs) or behavioural interventions (e.g. prompted voiding). Interventions were mainly compared with either placebo (with or without prompted voiding) or usual care. Trial duration ranged from four days to 32 weeks. The majority of included participants were female, with a mean age of 74 years. Most participants had moderate to severe cognitive impairment, with limited ambulatory ability and ability to perform activities of daily living. Wet checks were carried out every one or two hours for between eight to 24 hours per day. The main efficacy outcomes were based on research staff rather than nursing staff examinations, and were the percentage of wet checks showing incontinence and appropriate toileting ratio (proportion of voids using toilet or substitute).

Two reviewers independently assessed each study for inclusion. Discrepancies were resolved through discussion.

Assessment of study quality
The quality of the included trials was assessed according to the following criteria: concealment of randomised treatment allocation (possible score of 1 (poor quality) to 3 (best quality)); patient and investigator blinding; use of an intention-to-treat analysis; and adequate reporting of loss to follow-up.

The authors did not state how the validity assessment was performed.

Data extraction
Numbers or percentages of incontinent wet checks and appropriate toileting ratios were extracted where available.

Data were extracted independently by two reviewers.

Methods of synthesis
Trials were grouped by intervention type (behavioural versus pharmacological) and outcome. Findings were summarised in a narrative synthesis with accompanying tables describing the data and patient/study characteristics.

**Results of the review**

Fourteen RCTs (n=1,161) were included in the review; four trials used a crossover design; 10 trials used a parallel design. Only five trials described adequate methods of randomisation and concealment; four trials were double-blind, two trials included all randomised participants in their analyses. Sample sizes ranged from 12 to 190.

**Behavioural interventions** (eight RCTs): Five parallel RCTs compared the efficacy of behavioural interventions with usual care and consistently showed an improvement in urinary incontinence in favour of the intervention. Three RCTs, one of which was a crossover trial, assessed functional incidental training with prompted voiding; two RCTs showed greater improvements for functional incidental training with prompted voiding compared to usual care, but not versus prompted voiding alone (one RCT).

**Pharmacological interventions** (six RCTs): Three crossover RCTs and one parallel RCT assessed antimuscarinic drugs. The parallel trial (oxybutynin versus placebo) failed to report any urinary incontinence outcomes. The three crossover trials compared oxybutynin (two trials) or propantheline (one trial) with placebo and reported mixed findings with regard to the incidence of incontinent wet checks and toileting ratios. Of the two remaining trials, one parallel trial compared procaine haematoporphyrin with placebo and the other compared prompted voiding plus oral oestrogen and progesterone versus placebo plus prompted voiding. Neither reported significance differences between the intervention and control groups.

Adverse events were also reported in the review.

**Authors' conclusions**

This review reported that prompted voiding alone and prompted voiding plus exercise appeared to be associated with modest short-term improvements in urinary incontinence among residents of nursing homes with a minimum level of cognitive ability. Limited evidence suggested that antimuscarinic drugs may help those who are unresponsive to prompted voiding.

**CRD commentary**

This review answered a clearly defined review question using appropriate inclusion criteria. Searches were carried out in both databases and other resources, but only studies published in English were included in the review. This suggests that there may be a risk of both language and publication bias. Some attempts to reduce the risk of reviewer error and bias were made when selecting studies and extracting the study data. The quality of the trials was assessed, but it was unclear how many reviewers carried out the assessment. The validity of the included trials appeared variable and only one trial fulfilled all of the criteria. Sample sizes were also quite variable, but overall were small. Other differences in interventions, study design, outcomes and populations suggested that the authors' use of a narrative summary was appropriate. Overall, variations between the trials and their outcome data, plus limitations in their size and quality, suggest the authors' conclusions may not be reliable.

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

**Practice:** The authors stated that there appears to be no role for oestrogen for the treatment of urinary incontinence.

**Research:** The authors stated that further well-designed, long-term randomised controlled trials to assess prompted voiding alone, prompted voiding with exercise and antimuscarinic drugs are required in targeted nursing home residents with urinary incontinence. Such trials should assess measures of urinary incontinence, patient quality of life and costs.

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Record Status
This is a critical abstract of a systematic review that meets the criteria for inclusion on DARE. Each critical abstract contains a brief summary of the review methods, results and conclusions followed by a detailed critical assessment on the reliability of the review and the conclusions drawn.