

EFFECTIVENESS OF NON-SURGICAL INTERVENTIONS FOR WOMEN WITH STRESS URINARY INCONTINENCE: SYSTEMATIC REVIEW AND META-ANALYSIS OF RANDOMISED CONTROLLED TRIALS

Hypothesis / aims of study

A large number of non-surgical interventions have been tested in trials for the treatment of stress urinary incontinence (SUI) in women. Clear evidence-based information on the most effective interventions is not currently available. This study assesses the effectiveness of non-surgical interventions for SUI in women, using systematic reviews and meta-analyses. Previous meta-analyses have been hampered by the numerous pair-wise comparisons. This study addresses this problem by using mixed treatment comparison (MTC) models [1], a more sophisticated meta-analysis method that handles evidence about several interventions from many trials in one analysis, including those which have not been directly compared in any trial.

Study design, materials and methods

Randomised and quasi-randomised trials where more than 50% of women had SUI were eligible. Literature searching included Cochrane Incontinence Group's Specialised Register of trials and electronic databases up to June 2008. No language restrictions were applied to the searches. Reference lists of retrieved articles, conference abstracts and the websites of relevant professional organisations and manufacturers were also searched. The meta-analysis used both direct pair-wise comparisons and mixed treatment comparison models. The MTC model was analysed using Bayesian methods, so the results are reported as the median and 95% central credible interval for the odds ratio of two interventions.

The primary outcome measures used were cure and improvement of the symptoms of SUI. Cure was defined as resolution of the symptoms, whereas improvement referred to any improvement of the symptoms since baseline, and included cases that were also considered as cured. These two outcomes were measured in the trials as either patient-reported, clinician-reported or both. This review used patient-reported outcomes when they were available and used clinician-reported outcomes as a proxy to them when they were not reported.

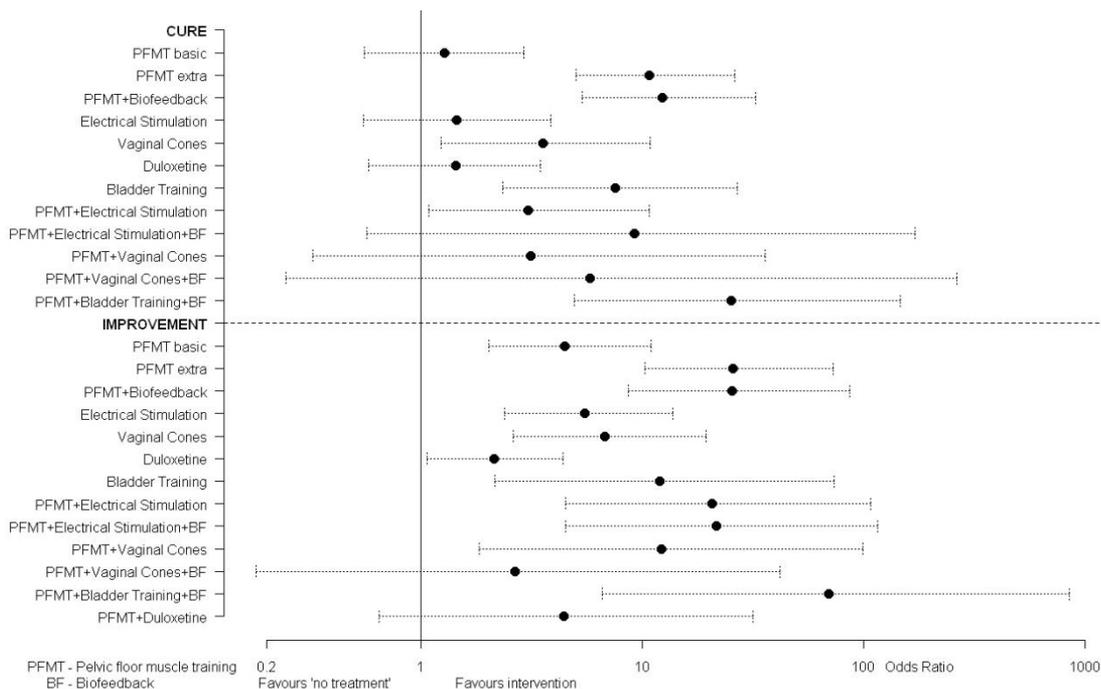
Results

88 trials were identified (9721 women). The MTC analysis compared 14 interventions (including 'no active treatment', see figure 1) and included data from 55 trials (6608 women) that reported primary outcomes (cure or improvement). Three of the interventions were studied in only one trial. Included studies were generally small and had short follow-up periods.

The interventions were on average more effective than no treatment. The direct evidence showed that pelvic floor muscle training (PFMT) on its own or combined with biofeedback was significantly better than no treatment at cure. Both of these interventions were also significantly better than no treatment at improving SUI, as were electrical stimulation, duloxetine, bladder training and PFMT combined with either electrical stimulation or duloxetine.

There was clear evidence that when pelvic floor muscle training was delivered with extra supervised sessions (more than two sessions per month) it was more effective than basic (two or fewer sessions per month) PFMT (cure: median odds ratio 8.36, 95% credible interval 3.74 to 21.7; improvement: median odds ratio 5.75, 95% credible interval 2.11 to 16.2; both MTC analysis). Hence, the mixed treatment comparison model was run with PFMT split into two treatments. This showed strong evidence that PFMT either with extra sessions or augmented with biofeedback alone or both biofeedback and bladder training were better than no treatment at cure; as were vaginal cones and bladder training alone. For improvement there was strong evidence that all of the treatments analysed were better than no treatment, with the exception of PFMT with vaginal cones and biofeedback and PFMT plus duloxetine (figure 1).

Figure 1. Odds ratio for each intervention compared with no treatment, as given by the mixed treatment comparison model. Median and 95% credible intervals.



The interventions PFMT with extra sessions and PFMT with biofeedback were each better, on average, than all of the other interventions analysed with the exception of PFMT combined with both biofeedback and bladder training. This intervention appears to be promising but the evidence about it came from only one trial. Adverse effects were uncommon except for when using duloxetine.

Interpretation of results

Pelvic floor muscle training reinforced with extra sessions or biofeedback appears to be the most effective interventions of those that have been tested in more than one trial, although there is some uncertainty surrounding this.

Concluding message

Using robust methods the non-surgical options for women with SUI have been compared in terms of their effectiveness. These results can be used to inform treatment decisions by women and health care professionals.

References

1. Caldwell, DM, Ades, AE and Higgins JPT. Simultaneous comparison of multiple treatments: combining direct and indirect evidence. *BMJ* Oct 2005; 331: 897 - 900; doi:10.1136/bmj.331.7521.897

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| Is this a clinical trial? | No |
| What were the subjects in the study? | NONE |