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SYSTEMATIC REVIEW AND EVALUATION OF METHODS OF DIAGNOSTIC ASSESSMENT FOR URINARY INCONTINENCE.

Hypothesis / aims of study
The evidence available on the accuracy, acceptability and cost (both financial and personal) of diagnostic assessment methods for urinary incontinence is inconsistent. This project aimed to: identify the literature on methods of diagnostic assessment, evaluate the quality of the evidence, evaluate the clinical efficiency of alternative diagnostic assessment methods and estimate the cost per case correctly diagnosed.

Study design, materials and methods
The review followed the NHS Centre for Review and Dissemination guidelines to identify, appraise and summarise the published evidence on methods of diagnostic assessment (1). Online bibliographic databases (Medline, EMBase and Cinahl) were searched using the standard search filter for diagnostic studies from 1966 to the end of 2002 resulting in a total of 6009 individual papers. Exclusion criteria were: diagnosis in children, reports in a non-English language, case reports, letters, reviews and papers investigating interventions where diagnostic tests were used as outcome measures. All identified papers were assessed for relevance by the first investigator on the basis of abstract, or if not available, title only. A proportion were then read by the second investigator. Any discrepancies were discussed. The QUADAS (2) tool was used to assess the included studies for quality with 7 different investigators assessing approximately thirty papers each.

Results
After application of inclusion and exclusion criteria 197 papers were found to be relevant and included in the review. Studies which reported the results of applying the same diagnostic procedure using the same threshold value were pooled using a fixed effects meta-analysis model in order to produce pooled estimates of sensitivity and specificity together with 95% Confidence Intervals (CI). Generally, reporting in the primary studies was poor and there was a lack of literature in the key clinical areas. Only a limited number of studies could be combined or synthesised. Table one shows the pooled sensitivities and specificities of commonly used primary care tests compared to multi-channel urodynamics.

Table 1. Primary care tests versus multi-channel urodynamics

Test	Number of studies	Sensitivity	Specificity
Clinical History (USI)	15	0.92 (95% CI 0.90-0.95)	0.56 (95% CI 0.48-0.64)
Clinical History (DO)	8	0.56 (95% CI 0.44-0.72)	0.88 (95% CI 0.83-0.93)
Scales (USI)	2	0.88 (95% CI 0.71-0.96)	0.60 (95% CI 0.52-0.68)
Diary (DO)	1	0.88 (95% CI 0.71-0.96)	0.83 (95% CI 0.77-0.87)

We examined the incremental cost effectiveness of three primary care tests used in addition to history (scales, diary and pad test) and found the diary had the lowest cost-effectiveness ratio of between 42 euros (£28) and 97 euros (£65) per extra unit of effectiveness (or case diagnosed). Tests performed in secondary care were also combined where possible and showed that imaging by ultrasound to determine leakage was found to be effective in the diagnosis of USI in women with a sensitivity of 0.94 and specificity of 0.83 and the supine clinical stress test for USI in women was found to have a sensitivity of 0.88 and specificity of 0.84.

Interpretation of results

This is the first systematic review of methods for diagnosing urinary incontinence. Reporting in primary studies was poor, clinical interpretation was often difficult because few studies could be synthesised and conclusions made. However, evidence suggests that a large proportion of women with USI can be correctly identified in primary care from history alone, although women with DO may fail to be identified from history alone. In secondary care ultrasound imaging and the stress test may offer valuable alternatives to urodynamic investigation.

Concluding message

The diary appears to be the most cost-effective of the primary care tests (diary, pad test and validated scales) used in addition to clinical history. Further primary studies adhering to STARD (3) guidelines are required on commonly-used tests.

References

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