NICE National Institute for Health and Care Excellence

Reducing the chance of recurrent urinary tract infection (UTI)

Decision aid: user guide and data sources

Role of the decision aid

The following recommendations from the NICE guideline on urinary tract infection (recurrent): antimicrobial prescribing, state:

Antibiotic prophylaxis

1.1.1 For women with recurrent UTI who are not pregnant, consider a trial of antibiotic prophylaxis only if behavioural and personal hygiene measures, and vaginal oestrogen (in postmenopausal women) are not effective or not appropriate.

Self-care

1.2.1 Be aware that:

- some women with recurrent UTI may wish to try D-mannose if they are not pregnant
- some women with recurrent UTI may wish to try cranberry products if they are not pregnant (evidence of benefit is uncertain and there is no evidence of benefit for older women).

The advice on behavioural measures was taken from the committee discussion on self-care.

Oestrogen

1.1.5 Consider the lowest effective dose of vaginal oestrogen (for example, estriol cream) for postmenopausal women with recurrent UTI if behavioural and personal hygiene measures alone are not effective or not appropriate. Discuss the following with the woman to ensure shared decision-making:

- the severity and frequency of previous symptoms
- the risk of developing complications from recurrent UTIs
- the possible benefits of treatment, including for other related symptoms, such as vaginal dryness
- the possible adverse effects such as breast tenderness and vaginal bleeding (which should be reported because it may require investigation)
- the uncertainty of endometrial safety with long-term or repeated use

- preferences of the woman for treatment with vaginal oestrogen.

Review treatment within 12 months, or earlier if agreed with the woman.

Choosing which option to have is a highly preference-sensitive decision. It involves trading-off the benefits against the risks of the different treatment options.

The NICE decision aids can help healthcare professionals explain and discuss these trade-offs. The person facing the decision can review the written information before deciding. There are 2 decision aids: 1 for premenopausal women and 1 for postmenopausal women.

As well as describing the common and serious side effects of cranberry, D-mannose, vaginal oestrogen and antibiotics, the decision aids include icon arrays (diagrams) to illustrate the expected absolute effects of antibiotics and vaginal oestrogen on the recurrence of UTIs.

Developing and updating the decision aids

The decision aids were developed by pharmacists in the NICE Medicines and Technologies Programme and healthcare professionals and lay members of the guideline committee.

NICE decision aids are reviewed as part of the surveillance process for the guidance to which they relate. If the guidance and the relevant recommendations are changed, the decision aids will also be updated.

Sources of data

D-Mannose and cranberry products

See the evidence and committee discussion on self-care in the NICE guideline.

Effects of antibiotics versus placebo

These data are taken from a systematic review by Albert et al. (2004) that was reviewed in the recurrent UTI guideline. This included 10 RCTs of antibiotics in 430 non-pregnant women with recurrent UTI. In 8 RCTs, antibiotics were given for 6 months and in 2 RCTs they were given for 12 months.

UTI recurrence at 6 to 12 months

The pooled rate of UTI in the placebo group was 51.2% (51 in 100). The risk ratio for UTI with antibiotic prophylaxis compared with placebo was 0.15 (95% CI 0.08 to 0.28) giving an absolute decrease of 44 per 100 (95% CI from 47 fewer to 37 fewer). To show the effects of vaginal oestrogen and antibiotics equally, we assumed a baseline risk of recurrent UTI of 60% and applied the risk ratio to that. We rounded the results to the nearest 5% to avoid giving the impression of a greater degree of accuracy than is warranted.

Adverse events

Information on the types of common adverse effects of antibiotics was taken from the manufacturers' summary of product characteristics (SPCs) for nitrofurantoin and trimethoprim. These SPCs do not give an indication of the likely incidence of these adverse effects. The decision aids reflect the data from Albert et al (2004) but precise figures are not given to avoid giving a greater impression of accuracy than is warranted and to avoid inappropriate comparisons with the risk of adverse effects from vaginal oestrogens.

Effects of intermittent single-dose antibiotics versus continuous antibiotics

These data are taken from 1 randomised controlled trial by Zhong et al. (2011) that was reviewed in the recurrent UTI guideline. This compared intermittent single-dose antibiotic prophylaxis with continuous antibiotic prophylaxis in 83 postmenopausal women who had had 3 or more UTIs in a 12-month period.

Recurrence of UTI

There was no statistically significant difference in the number of women who had at least 1 recurrent UTI in the continuous antibiotic group compared with the intermittent antibiotic group.

Adverse events

The risk ratio for adverse events with intermittent single-dose antibiotics was statistically significantly lower compared with continuous antibiotics: 0.69 (95% CI 0.52 to 0.9).

Effects of vaginal oestrogen versus placebo

These data are from the systematic review by Perrotta et al. (2008) that was included in the recurrent UTI guideline. This included 1 randomised controlled trial of estriol cream in 93 non-pregnant women with recurrent UTI and 1 randomised controlled trial of estradiol-releasing silicone vaginal ring in 108 non-pregnant women with recurrent UTI.

UTI recurrence at 8 months (estriol cream)

The efficacy results of these studies were not pooled because of differences in the study design. We therefore opted to present the results for estriol cream in the decision aid because this vaginal oestrogen product is given as an example in the guideline. The rate of UTI in the placebo group was 62.8% (63 in 100). The risk ratio for UTI with estriol cream compared with placebo was 0.25 (95% CI 0.13 to 0.50) giving an absolute decrease of 47 per 100 (95% CI from 55 fewer to 31 fewer). To show the effects of vaginal oestrogen and antibiotics equally, we assumed a baseline risk of recurrent UTI of 60% and applied the risk ratio to that. We rounded the results to the nearest 5% to avoid giving the impression of a greater degree of accuracy than is warranted.

Adverse events with vaginal oestrogens (includes vaginal ring)

Information on the types of common adverse effects of vaginal oestrogens was taken from the manufacturers' SPCs for oestriol cream. These SPCs do not give an indication of the likely incidence of these adverse effects. The decision aid reflects the data from Perrotta et al (2004) but precise figures are not given to avoid giving a greater impression of accuracy than is warranted and to avoid inappropriate comparisons with the risk of adverse effects from antibiotics. The manufacturers' SPCs for vaginal oestrogens discuss the possible risks of oral oestrogens for HRT. However, the decision aid reflects the information on risk of topical and vaginal oestrogens given in the NICE menopause guideline.

References

Albert X, Huertas I, Pereiro II, et al. (2004) Antibiotics for preventing recurrent urinary tract infection in non-pregnant women. The Cochrane database of systematic reviews (3): CD001209

Perrotta C, Aznar M, Mejia R, et al. (2010) Oestrogens for preventing recurrent urinary tract infection in postmenopausal women. The Cochrane database of systematic reviews (2): CD005131

Zhong Y H, Fang Y, Zhou J Z, et al. (2011) Effectiveness and safety of patient initiated single-dose versus continuous low-dose antibiotic prophylaxis for recurrent urinary tract infections in postmenopausal women: a randomized controlled study. Journal of International Medical Research 39: 2335–43