

Antiseptic drug as good as antibiotics for preventing recurrent urinary tract infections

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The antiseptic drug methenamine hippurate is as good as antibiotics for preventing recurrent urinary tract infections in women, finds a trial published by *The BMJ* today.

Its use as an alternative to antibiotics may also help tackle the global burden of [antibiotic resistance](#), say the researchers.

Over half of [women](#) have at least one urinary tract [infection](#) (UTI) in their lifetime, and recurrence (defined as at least three repeated infections per year or two infections in the preceding six months) occurs in about a quarter of women who have one episode.

Current guidelines recommend daily low dose antibiotics as the standard preventive (prophylactic) [treatment](#) for recurrent UTI. But such long term use of antibiotics has been linked to antibiotic resistance, so research into non-antibiotic alternatives is urgently needed.

Methenamine hippurate is a drug that sterilizes urine, stopping the growth of certain bacteria. Previous studies have shown that it could be effective in preventing UTIs, but the evidence is inconclusive and further randomized trials are needed.

So a team of UK researchers, led by clinicians and scientists from Newcastle-upon-Tyne, set out to test if methenamine hippurate is an effective alternative to standard antibiotic treatment for preventing recurrent UTI in women.

Their findings are based on 240 women (aged 18 or over) with [recurrent urinary tract infections](#) requiring prophylactic treatment. On average before trial entry these women experienced over six UTI episodes per year.

Women were recruited from UK secondary care centers between June 2016 and June 2018 and were randomly assigned to daily antibiotics (102 women) or daily methenamine hippurate (103 women) for 12 months, with three monthly assessments up to 18 months.

The non-inferiority margin, defined after a series of patient focus group meetings, was a difference of one UTI episode per year.

During the 12 month treatment period, the UTI rate was 0.89 episodes per person year in the antibiotic group and 1.38 in the methenamine group—an absolute difference of 0.49 episodes per person year.

This small difference between the two groups was less than the predefined threshold of one UTI episode per year, suggesting that methenamine was no worse than antibiotics at preventing urinary tract infection.

Methenamine was also associated with reduced antibiotic consumption and similar levels of adverse reactions and treatment satisfaction compared to daily antibiotics.

And results were similar after further analyses, such as excluding days taking antibiotics for urinary tract infection, adding weight to the findings.

The researchers point out that data regarding long term safety of methenamine hippurate are scarce, and they acknowledge some trial limitations, including lack of blinding and differences in antibiotics prescribed, that may have affected their results.

They also note that four participants allocated to methenamine hippurate were admitted to hospital because of UTI, and six participants who were allocated to methenamine hippurate reported a fever during a UTI episode (febrile UTI).

However, they say this was a well-designed trial that accurately represented the broad range of women with recurrent UTI seen regularly in routine NHS practice.

As such, they say their results "could support a change in practice in terms of preventive treatments for recurrent UTI and provide patients and clinicians with a credible alternative to daily [antibiotics](#), giving them the confidence to pursue strategies that avoid long term antibiotic use."

The information provided by this trial "might encourage patients and clinicians to consider methenamine hippurate as a first line treatment for UTI prevention in women," they add.

"Although the results need cautious interpretation, they align with others, and this new research increases the confidence with which methenamine hippurate can be offered as an option to women needing prophylaxis against recurrent urinary tract infection," say Australian researchers in a linked editorial.

The appropriateness of the non-inferiority margin (one episode of urinary tract infection) used in this trial to capture clinically meaningful differences between treatments will likely inspire debate, they add.

However, they agree that decisions on preventive treatment for recurrent [urinary tract infection](#) are well suited to shared decision making between each patient and their doctor, and say this trial "will help to inform this important conversation."

More information: Chris Harding et al, Alternative to prophylactic antibiotics for the treatment of recurrent urinary tract infections in women: multicentre, open label, randomised, non-inferiority trial, *BMJ* (2022). DOI: 10.1136/bmj-2021-0068229 , www.bmj.com/content/376/bmj-2021-0068229

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