Pinning down the evidence for acupuncture for recurrent urinary tract infection (UTI). (Mini-commentary on BJOG-20-0142.R1)

Rufus Cartwright[1] and Pawel Miotla[2]

[1]Oxford University Hospitals NHS Foundation Trust
[2]Medical University of Lublin

June 1, 2020

Mini-commentary on BJOG-20-0142.R1: Acupuncture for recurrent urinary tract infection in women: A systematic review and meta-analysis

Pinning down the evidence for acupuncture for recurrent urinary tract infection (UTI)

Rufus Cartwright,[1] Pawel Miotla[2]

1) Oxford University Hospitals NHS Foundation Trust,

Oxford, UK

2) Medical University of Lublin,

Lublin, Lubelskie, Poland.

Email: rufus.cartwright@gmail.com

UTI is among the most common bacterial infections, accounting for around one quarter of all antibiotic prescriptions. At least one quarter of women who experience a UTI will also go on to have a confirmed recurrence within six months, thereby meeting the definition for recurrent UTI [Foxman B. *Am J Public Health* . 1990;80:331-3]. While antibiotics remain widely effective both for treatment and prevention of recurrence, we face significant antibiotic resistance, with high rates of primary resistance in urine cultures, and knock on effects on bloodstream sepsis, particularly from drug resistant *E. coli* . Effective non-antibiotic approaches in recurrent UTI treatment or prophylaxis would be very attractive both for individual patients and from the population perspective [Sihra N et al. *Nat Rev Urol.*2018;15:750-76].

This systematic review [Qin X et al. *BJOG* 2020 https://doi.org/10.1111/1471-0528.16315] updates earlier reviews of the topic, including the only two RCTs of acupuncture for prophylaxis of recurrent UTI, and adding three more recent RCTs that have tested acupuncture for treatment of upper or lower tract infection. The authors assert on the basis of two unblinded trials, a GRADE rating of low certainty in an estimated RR of 0.39 with acupuncture compared to no treatment for prevention of recurrence over six months. The authors suggest on the basis of a single partially blinded trial, a GRADE rating of moderate certainty in an estimated RR of 0.45 for acupuncture compared to sham acupuncture for prevention of recurrence over six months. Skeptics might have further rated down the certainty in estimates, noting few events, wide confidence intervals, high risk of bias, and uncertainty about selective outcome reporting or publication bias.

For the issue of treatment of active UTI, among women with a recurrent UTI, readers may be even more skeptical. The authors identify that while acupuncture might reduce symptoms of cystitis, it is implausible that it should treat bacterial cystitis or upper tract infection. On the basis of three unblinded trials, the authors suggest a GRADE rating of low certainty in a RR of 1.92 for a composite definition of cure with

either needle acupuncture (one trial) or moxibustion (two trials) compared to antibiotics. On the basis of one trial, they also suggest very low certainty in a 2-day reduction in symptom duration. None of these trials are available in English, and the authors do not specify in the characteristics of included studies, but these studies may provide only indirect evidence for the patients seen in gynaecological practice. One trial is explicitly for chronic pyelonephritis, one is for chronic UTI (unclear if upper or lower tracts), and the single trial for recurrent bacterial cystitis demonstrates no benefit in composite cure. All three trials have extremely low rates of cure with antibiotics (22.9-35.0%). Again then, we might further rate down the evidence on the basis of indirectness, as it may not apply for the typical uncomplicated recurrent bacterial cystitis seen in gynaecology.

Given the lack of biological plausibility, and very low confidence in the evidence base, it is unsurprising that current guidance does not recommend use of acupuncture for prevention or treatment of UTI [EAU. Urological Infections Guidelines. https://uroweb.org/guideline/urological-infections/ Accessed 27 May 2020]. A change in confidence can only come from adequately blinded, appropriately powered RCTs, but there will be little appetite from funders based on the current evidence.

Disclosures: Rufus Cartwright- no conflict of interests; Pawel Miotla- consultant for Adamed, Angelini, Astellas, Bayer, Bionorica. Completed disclosure of interest forms are available to view online as supporting information.