

## ***A novel use of structured water (Magnalife®) for the prevention of recurrent urinary tract infections.***

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### **Hypothesis / aims of study**

This is the first time to use structured water in urology and to test its effects against lower urinary tract infections in females. Urinary tract infections are among the most common bacterial infections, affecting women at a much higher frequency than men. There is also a high level of recurrence of UTI and 25–35% of initial UTI episodes will be followed by a recurrent infection within 3–6 months. Although recurrent UTIs have traditionally been managed by intermittent or prolonged antibiotic therapy(1) increasing antimicrobial resistance, large economic burden and the side effects of the antibiotics have stimulated interest in non-antibiotic prophylaxis of recurrent urinary tract infections (2). Structured water is a new type of water that has been prepared using different types of energy fields and modulators to produce this structured water that has new and different characteristics from the ordinary water(3). In this study, we compared the efficacy of the structured water (Magnalife®) with low-dose trimethoprim, and ordinary bottled water in the prevention of recurrent urinary tract infections (UTIs)

### **Study design, materials and methods**

Three hundred women with two or more antibiotic-treated UTIs in the previous 12 months were divided into three groups .100 patients to receive structured water (Magnalife®),100 patients to receive 100 mg of trimethoprim, and 100 patients who received ordinary bottled water for 12 months. Urine samples were collected for urinalysis and urine cultures at the beginning of the study, and at any time they got urinary tract infection, and at the end of the study (at the end of the 12th month). All patients have been informed and all signed informed consent form.

### **Results**

87 of the 300 participants included in the study (29%) had an antibiotic-treated UTI (9 in the structured water group), (15 in the trimethoprim group) , and (63 in the ordinary bottled water group). The number of patients with recurrent UTI in the structured water group and the trimethoprim group was not significantly different ( $P=0.192$ ), while the number of patients in the structured water group and ordinary bottled water group was significantly different( $P<0.001$ ). Also the number of patients in the trimethoprim group and the ordinary bottled water group was significantly different ( $P<0.001$ ). The mean time to first recurrence of UTI was 169.44 days for the structured water group and 160.07 days for the trimethoprim group, and 121 days for the ordinary bottled water group. The difference was significant between the three groups regarding the mean time to first recurrence of UTI( $P<0.001$ ).

### **Interpretation of results**

The group of patients who used structured water showed the least number of lower urinary tract infections among the three groups and this can be explained by the the fact that structured water has different properties than the ordinary water and that this water has less surface tension and different physical characteristic and this ads different biological capabilities and this can explain the higher antibacterial effects of this water as seen in this original study. This group showed similar results to the metheprim group although it was a little bit higher in prevention and this may be attributed to the idea that bacterial resistance may be formed in the Metheprim group leading to some more cases of infections. While the structured water group showed less cases of UTI because it is not associated with drug resistance as this new method of prevention is water dependent and not drug dependent.

### **Concluding message**

Structured water (Magnalife®) is a novel way for the prevention of recurrent UTIs. This new way will allow patients with recurrent UTIs to control their infections without the need for expensive drugs with undesirable side effects. Furthermore, this structured water does not carry the risk of antimicrobial resistance or super-infection with *Clostridium difficile* or fungi. Further studies are recommended to assess the effects of this structured water in other fields of urology.

