1. Introduction

- Current Australian antibiotic therapeutic guidelines recommend that symptomatic catheter-associated urinary tract infections (CAUTIs) should be treated by removing or changing catheters and treating CAUTIs based on symptoms and results of cultures and susceptibility testing obtained from a new catheter.1
- Persons with spinal cord injury (SCI) with neurogenic bladders who require ongoing catheterisation often have asymptomatic bacteriuria.2
- Current treatment of UTI in SCI is not well standardised with limited evidence.3
- Moreover, there has been an emergence of extended beta-lactamase (ESBL) gram negative urinary isolates amongst the inpatient SCI population.4

According to the Australian Antibiotic Therapeutic guidelines:1

- Empirical antibiotic therapy for mild UTIs is oral amoxycillin+clavulanate OR cephalaxin OR trimetoprim. However if Pseudomonas aeruginosa is suspected, ciprofloxacin or norfloxacin is recommended.5
- Empirical antibiotic therapy for severe UTIs is intravenous gentamicin and amoxycillin/amoxicillin.
- Urinary tract sepsis with suspected multi-drug resistant bacteria should be empirically treated with meropenem.

2. Methods

ProSCIUTTU was a randomised, double-blind, double-dummy controlled trial investigating whether probiotics reduce UTIs in participants with neurogenic bladder secondary to SCI.6

The trial was conducted in the state of New South Wales (NSW) in Australia. It commenced in April 2011 and concluded in February 2014.

The participants were randomised into 4 groups:
- Group A – active Lactobacillus reuteri RC14 and Lactobacillus rhamnosus GR1 plus Lactobacillus rhamnosus GG and bifidobacterium BB12 (RC14GR1 + LGGBB12)
- Group B – active RC14GR1 + placebo
- Group C – active LGGBB12 + placebo
- Group D – both placebo

Each intervention was given for 24 weeks.

For study endpoint, participants had to meet clinical and microbiological criteria for UTI.

The urine cultures and antibiotic susceptibility testing of endpoint participants were studied.

The aim was to see whether empirical antibiotic therapy suggested by the therapeutic guidelines for severe UTI applies to SCI persons with catheters.

3. Results

- 53/207 participants met study endpoint criteria for UTI.
- 27/53 were tetraplegics.
- 31/53 had suprapubic or indwelling catheters.
- 41/53 were outpatients.
- 42/53 urines reported pure growth of an organism.
- 36/42 urines grew gram-negative organisms.
- The predominant species was Escherichia coli (14/36).
- 20/22 of the Enterobacteriaceae were susceptible to amoxycillin + clavulanate. Only a small number were tested for sensitivity to gentamicin.
- 2/6 of the gram-positive were sensitive to ampicillin/amoxicillin.
- 9/36 grew Pseudomonas. Pseudomonas was susceptible to ceftazidime in 5/6 of UTIs and to gentamicin in 8/9 of UTIs.

4. Conclusion and Recommendations

- As bacteriuria and catheter colonisation occur commonly in catheterised SCI patients, the existing catheter should be changed and cultures and sensitivities be performed from urine sampled via a new catheter to avoid contamination.
- Antibiotic treatment should only be commenced in symptomatic patients.
- Current Australian antibiotic therapeutic guidelines for UTI are applicable for catheterised SCI patients within the state of NSW.
- However, if there is a history of prior colonisation or infection with Pseudomonas species, amoxycillin/ampicillin should be substituted with ceftazidime in severe UTIs.
- In conjunction with antibiotics, the authors felt that once clinical response and therapy based on susceptibility testing results are commenced, there should be a further catheter change to ensure effective treatment of UTI in these patients.
- It is reassuring that, despite prolonged catheterisation and frequent hospitalisation in this cohort of participants, the prevalence of multi-resistant organisms was low in each category of organism.
- It is important that empirical guidelines for general population are routinely tested for specialised patient groups.

References