Reducing Catheter Associated Urinary Tract Infection (CA-UTI) - Using noble-alloy coated urinary catheter

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Introduction
Catheter associated-urinary tract infection (CA-UTI) is an important cause of nosocomial infection. CA-UTI has been associated with increased morbidity, mortality, hospital cost, and length of stay. Various antimicrobial coated catheters, including antibiotics and heavy metals, had been tried to prevent CA-UTI. Bactiguard foley catheter is a noble alloy coated latex catheter. It provides a stable, non-release coating with repellent properties and can be used for up to 30 days. In a large scale multicenter randomized controlled trial conducted in the United Kingdom, researchers cannot find a significant reduction in infection rates when using silver coated catheters. This study has been widely quoted. However, the mean duration of catheterization was only 2 days with only 3% of its participants had prolonged catheterization of >14 days. The efficacy of antimicrobial coated for those long term foley catheterization is still undetermined.

Objectives
This study is aimed to investigate if the use Bactiguard foley catheter can reduce CA-UTI.

Methodology
This is a prospective study performed between 1st May 2011 and 30th April 2012 involving two extended care wards in Kowloon Hospital. We included adult patients requiring an indwelling urinary catheter for more than 24 hours. During the first 6 months, conventional latex urinary catheters are used. Bactiguard urinary foley catheters were used in the latter 6 months. Exclusion for use of Bactiguard includes
intermittent catheterization, suprapubic catheter or use of Silicone foley. For all recruited patients, surveillance urine specimens are taken at the following points: immediately after new catheter insertion, weekly and before discharge or before catheter removal. Any signs and symptoms compatible with UTI at the time of urine specimen collection were documented. We followed the National Healthcare Safety Network surveillance method for CA-UTI. The onset date is defined as the day of the urine specimen collection.

**Result**

A total of 278 patients were studied. The male to female ratio was 1:1.05. The mean age was 81 years old (range 36 – 101). 183 patients used conventional foley catheters only, 157 use conventional foley catheters and bactiguard catheters, 26 patients used bactiguard foley catheters only. A total of 3108 catheter days were surveyed, 1766 and 1353 catheter days from convention and bactiguard catheters respectively. There was statistically significant difference in CAUTI episode for Bactiguard group and convention group, 26.04 and 11.82 infections per 1000 catheter days respectively (P < 0.05). Our study showed use of Bactiguard foley is associated with 54.6% less CA-UTI when compared to using conventional foley catheters, and it is statistically significant. However, our study has several limitations: Firstly, our study was an open-labelled trial. Secondly, the CA-UTI rate in our study was a gross overestimate as compared to routine surveillance methods because instead of clinical samples, and we also actively looked for CA-UTI by regular urine sampling. In addition, we have selected the highest risk infirmary patients. This study should pave the way for future similar, more structured clinical trials.