

POSTER PRESENTATION

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Determination of bacteria migration speed through urinary catheter systems in case of urostomy

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Introduction

Following a urostomy, the main aim from a hygiene perspective is to prevent bacteria from accumulating in the artificial drainage system (splint), e.g. as a result of contaminated urine. A return stop in the urostomy pouch keeps this risk to a minimum. In practice, however, splints are often pushed through the return stop to keep them more securely in place, which means that they may come into direct contact with the potentially contaminated urine.

Objectives

The Objective was to study the migration speed of clinically-relevant bacteria in catheter systems used after urostomy.

Methods

We carried out an in-vitro experiment in a commercially-available uriniferous system applied in a urostomy. This involved connecting two storage vessels: the first containing splints which had previously been rinsed once with artificial urine; and the second containing a bacterial suspension of the test bacteria (*E. coli*, *P. aeruginosa* and *P. mirabilis*), which had previously been soaked in artificial, sterile urine. The two storage vessels were incubated at 36 °C for 24 to 72 hours. The splints were cut into segments of 5 cm after 24 hours, 48 hours and 72 hours. The colony-forming units (CFU) on the pieces were determined. Each experiment was carried out nine times before the average values and standard deviations were subsequently determined.

Results

After 24 hours the bacteria migrated into the splint, on average, as follows: *E. coli* 26.7 cm ± 20.6, *S. aureus*

27.2 cm ± 10.6 and *P. mirabilis* 12.8 cm ± 16.2. After 48 hours the bacteria migrated as follows: 35.0 cm ± 11.2 (*E. coli*), 51.7 cm ± 7.5 (*S. aureus*) and 41.7 cm ± 23.6 (*P. mirabilis*). The results after 72 hours were: 49.4 cm ± 14.5 (*E. coli*), 60 cm ± 16.0 (*S. aureus*) and 67.8 cm ± 3.6 (*P. mirabilis*).

Conclusion

The test bacteria grew relatively quickly through the catheter. It is likely that bacteria would grow through catheters with 80 cm length within a week at the latest. In this case, there is a direct infection risk for bladder and kidneys of the patient. These results should be taken into consideration during clinical use of the catheter systems in case urostomy.

Disclosure of interest

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