

THE EFFECT OF URETHRAL INTRODUCER TIP CATHETERS ON THE INCIDENCE OF URINARY TRACT INFECTION OUTCOMES IN SPINAL CORD INJURED PATIENTS

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ABSTRACT

Purpose: We attempted to determine whether an introducer tip catheter reduces urinary tract infection in spinal cord injured patients on intermittent catheterization.

Materials and Methods: The introducer tip catheter bypasses the colonized 1.5 cm. of the distal urethra. Enrolled patients were prospectively entered into the study in alternate groups depending on whether they reflex voided: group 1—on intermittent catheterization with the introducer tip catheter but not voiding spontaneously or wearing an external urinary catheter, group 2—same as group 1 but using a nonintroducer tip catheter; group 3—on intermittent catheterization with the introducer tip catheter, voiding by reflex and wearing an external urinary catheter, and group 4—same as group 3 but using a nonintroducer tip catheter.

Results: Statistical significance was shown when comparing patients using versus not using the introducer tip catheter regardless of whether an external urinary catheter was worn ($p = 0.0121$). A greater difference was noted between patients using and not using the introducer tip catheter in the intermittent catheterization only group ($p = 0.0093$).

Conclusions: The introducer tip catheter decreased urinary tract infections in hospitalized men with spinal cord injury on intermittent catheterization.

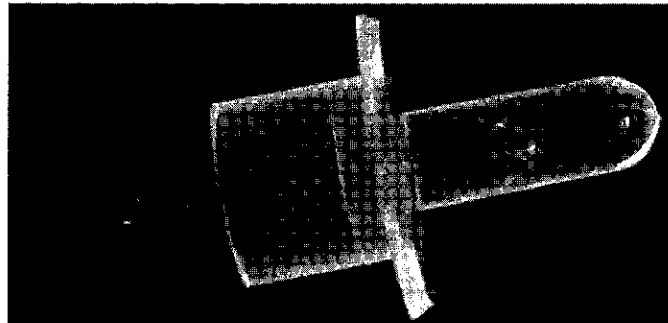
KEY WORDS: urethra, spinal cord injuries, urinary tract infections, urinary catheterization

In the last several decades intermittent catheterization has become the urological management option of choice for patients with spinal cord injury.¹⁻³ Although intermittent catheterization has decreased the incidence and severity of urinary tract infections in hospitalized patients, hospital acquired gram-negative organisms in the urine, many of which are resistant to antibiotics, have become a major concern. Such infections result in increased morbidity, loss of patient therapy time, increased hospital stay and increased cost of rehabilitation. Numerous articles associate colonization of the distal urethra in spinal cord injured patients with an increased incidence of urinary tract infections in men with spinal cord injury. Montgomerie^{4,5} and Gilmore^{6,7} et al performed multiple studies on the colonization of *Pseudomonas* and *Klebsiella* in the perineum and urethra in spinal cord injured men, and they demonstrated considerably more colonization when patients were wearing external catheters. Hirsh et al believed that colonization beneath the external catheter and extension into the distal urethra placed patients at greater risk for urinary tract infection when they were concurrently on an external catheter and intermittent catheterization.⁸ We examined the urinary tract infection rate in hospitalized patients on intermittent catheterization using a sterile introducer tip catheter system that bypasses the colonized portion of the urethra, and compared results to those of patients on intermittent catheterization but not using an introducer tip catheter system.

MATERIALS AND METHODS

The MMG/O'Neil* catheter system was originally developed in Australia for obstetrics patients.⁹ The system consists of a plastic catheter enclosed in a prelubricated plastic sleeve and urethral introducer tip that protects the catheter from contamination by the colonized first 1.5 cm. of urethra (see figure). All patients underwent catheterization using the MMG/O'Neil system or that system with the introducer tip removed, as packaged and sterilized by the manufacturer. Both catheter kits contained povidone-iodine swabs for skin preparation. Approval was obtained from the Food and Drug Administration to remove the introducer tip selectively from the catheter system.

* Medical Marketing Group, Decatur, Georgia.



MMG/O'Neil catheter system with catheter enclosed in introducer tip.