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LETTER TO THE EDITOR

50 years of clean intermittent self-catheterization

Dear Sir,

Clean Intermittent Self-Catheterization (CISC) has become a life-saving method for bladder emptying in patients with Lower Urinary Tract Dysfunction (LUTD), whether neurogenic or non-neurogenic. Since it was proposed by Dr Lapides in his landmark 1972 paper [1], CISC has stood the test of time and today, it stands as the critical concept that enables urologists worldwide to perform bladder augmentation, continent urinary diversion and several other urinary reconstructive procedures.

Intermittent Catheterization (IC) was not a new notion. In the late 1940s, it was Sir Ludwig Guttmann, a German-British neurologist and the father of the modern Paralympic movement, who advocated the use of intermittent, strictly aseptic, urethral catheterization to avoid the complications of a long-standing suprapubic catheter or a vesicostomy in paraplegics, quadriplegics and other patients with post-traumatic neurogenic LUTD [2]. However, his regimen required the physician to perform catheterization in the male patients and a registered nurse in female patients as he believed that urinary infection originated primarily from bacteria introduced through the catheter and that sterile urine could be maintained despite intermittent catheterization 'provided proper aseptic precautions are taken.' But, as Dr Lapides noted, IC never became popular since there were not enough physicians available to perform the number of daily catheterizations in the manner advocated by Guttmann.

In the 1950s and '60s, the options for the treatment of the 'infrequent voider' included ureteric reimplantation for those having vesicoureteric reflux and operations to correct 'vesical neck contracture' in others. None of these solved the basic problem though. Dr Lapides postulated that 'host resistance rather than micro-organism is the prime factor in the development of urinary infections'. He observed in his 1972 paper – 'Most cases of urinary tract infection are due to some underlying structural or functional abnormality of the urogenital tract which leads to decreased resistance of tissue to bacterial invasion'. Combined with this was the observation of 'the tolerance of prolonged catheter drainage by many patients without becoming septic (for example cystostomy, ureterostomy and nephrostomy) and the excellent response of individuals following cutaneous vesicostomy, despite the fact that all of these people have continual bacteriuria' [1].

In 1970, a 30-year-old woman with multiple sclerosis came to Dr Lapides with complaints of urge incontinence, incomplete bladder emptying and recurrent urinary infections after already having undergone several unsuccessful surgeries for correction of her urinary incontinence. And when she was offered a urinary diversion, she understandably refused to go under the knife ever again. It was then that Dr Lapides and his team proposed to her the somewhat experimental option of sterile intermittent 'self-catheterization'. They taught her to catheterize the bladder every 2–3 h by herself, initially under clinical supervision with the help of a mirror sitting on a toilet seat. Gradually, she could catheterize herself without the mirror, just by palpating her urethral meatus. The patient started to enjoy a new social life, resumed good conjugal relations with her husband and also began to travel. She used to clean the 14 F Robinson catheter provided to her with soap and water and after 4 weeks of clean, intermittent self-catheterization, the urine was found to be completely devoid of bacteria and cellular elements and it remained so without any antibacterial medication.

It was a watershed moment in the field of Urology.

Dr Lapides realized the enormity of his discovery. Based on astute observations of his predecessors – 'retention rather than catheterization is the thing to be feared' [3] – Dr Lapides hypothesized, 'Intermittent catheterization of the bladder should be an innocuous procedure provided the bladder is not permitted to overdistend and it is performed in an atraumatic fashion. Furthermore, a clean and not an aseptic technique should suffice since any bacteria introduced by the catheter will be neutralized by the resistance of the host' [1].

CISC obviated the need for surgical operations designed to correct outlet obstructions and to divert the urine. Emphasis was placed upon the importance of frequency of catheterization rather than the sterility. The patients were explained that, contrary to popular belief, most urinary bacteria come from the bloodstream and not from the vagina, urethra, hands or catheter. They were suggested not to postpone catheterization when soap and water was not available but to catheterize at the time regardless of the circumstances. Dr Lapides concluded with the following lines which still hold true today – 'Not only have we demonstrated that intermittent, self-catheterization is an effective form of therapy for vesical dysfunction and urinary infection in patients of all ages and both sexes with neurogenic disease, obstructive uropathy and decompensated bladders but we have shown that it is a convenient, practical, do-it-yourself method because aseptic considerations are unnecessary' [1].

By 1976, he had 218 patients on CISC (4–84 years age; 128 females and 90 males) [4]. In a matter of 5 years, clean (unsterile), intermittent self-catheterization had become the preferred, initial form of therapy for LUTD and urinary diversion was relegated to the status of a last resort measure. CISC made voiding an option rather than a requirement, and completely changed the goals and results of incontinence surgery.

It still remains the most useful method for bladder emptying in patients with LUTD, providing them with a new lease of life without the need for an indwelling device. As of today, 50 years since Dr Lapides' discovery, an astounding 400,000 patients practice CISC in the United States and it may be prudent enough to say that it remains an enormous contribution that has benefited more lives than nearly any other contribution in the history of urology.

Disclosure statement

No potential conflict of interest was reported by the author.

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