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THE ROLE OF CLEAN INTERMITTENT CATHETERIZATION IN REHABILITATION SETTING: A SURVEY OF HEALTHCARE OPERATORS' PERCEPTION IN ITALY

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SPECIAL ARTICLE

The role of clean intermittent catheterization in rehabilitation setting: a survey of healthcare operators' perception in Italy

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ABSTRACT

BACKGROUND: Clean intermittent catheterization (CIC) is defined as the repetitive temporary placement of a catheter to empty the bladder. It has become the first-line and preferred method of drainage in patients with neurogenic lower urinary tract dysfunction.
AIM: We investigated the use of CIC in the real-life setting in Italy.
METHODS: We administered interviews to health operators of centers for urinary rehabilitation. Results: Overall, 110 healthcare professionals were invited to fill the questionnaire and 109 (72% males) answered it. Answers to the questionnaire showed that 65.2% of patients with urinary retention used CIC, 22.3% used a transurethral indwelling catheter, and 5.5% used a suprapubic catheter; 6.3% of patients used CIC during the daytime and used the indwelling catheter during the night. The most relevant factor, pertaining the patient, to decide to propose the use of CIC was manual ability, followed by good cognitive function, adequate anatomical condition, age, available adequate caregiver, psychological consistency and good socio-cultural level. Lubrification, usability and easy insertion were the most relevant characteristics of a catheter that favored the choice of the device for CIC. In addition, in the opinion of interviewed operators, the line of catheters with glycerin-water based lubrification had the main characteristics to be preferred for CIC.
CONCLUSIONS: CIC is a preferential intervention for urinary retention in the clinical practice in Italy, is chosen on the basis of patient's characteristics, and lubrification, usability and easy insertion are the most important features of catheters.

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KEY WORDS: Intermittent urethral catheterization; Urology department, hospital; Urinary retention; Catheters.

Urinary retention may be caused by an underactive bladder muscle, bladder outlet obstruction or a combination of both. Independent of underlying mechanisms, not only does incomplete bladder emptying worsen storage symptoms, such as frequency, nocturia, urgency and incontinence, but it may also predispose patients to a wide range of complications, including recurrent urinary tract infections (UTIs), bladder stones, upper urinary tract changes and, even, renal impairment.[1] Pharmacological and/or surgical treatment of voiding dysfunction often does not achieve sufficient bladder emptying, and sometimes treatment for an overactive bladder cannot completely prevent a degree of urinary retention.[2]

Clean intermittent catheterization (CIC) has become the first-line and preferred method of drainage in patients with neurogenic lower urinary tract dysfunction, as long as dexterity or available caregiver support and body habitus allow access.[3]

CIC is defined as the repetitive temporary placement of a catheter to empty the bladder.[1] Traditionally, indwelling transurethral and suprapubic catheters have been used, but CIC has revolutionized the management of voiding dysfunction. The introduction of CIC has significantly reduced the incidence of urological complications of classic indwelling catheters, such as renal inflammation, pyelonephritis, bladder and urethral erosion, bladder stones, cancer and urosepsis.[4, 5]

UTIs in patients with a neurogenic bladder are a major public health issue due to their high rates of incidence and major consequences. Regarding preventive measures of

UTIs, use of CIC, intravesical botulinum toxin injection and antibiotic cycling are considered effective prevention methods.[5]

Patients' perspectives of CIC and adherence to this technique have been widely investigated.[6, 7] Although it has been shown that this technique improves quality of life, from the patient's perspective, CIC is often viewed as invasive, difficult or shameful.[6, 7]

On the other end, professional caregivers' points of view on CIC have been rarely discussed in literature. Understanding current management of urinary retention, criteria for eligibility to CIC, and organization problems may help to identify strategies to promote patient acceptance of CIC. The urologists' point of view was investigated by a survey that was conducted in Belgium, which showed that CIC was considered a very good option but some barriers limited its proposal to patients: lack of specialized nurses, lack of professional experience and lack of financial compensation, and, finally, it is difficult to manage the psychological impact on the patient.[2]

We investigated the use of CIC in the real-life setting in Italy, by administering interviews to health operators of centers for urinary rehabilitation. The aim of the study was to understand criteria used in Italy for decision regarding CIC prescription, to collect data about patients who were actually treated with CIC, to evaluate operators' satisfaction with CIC, and to understand whether a line of catheters with glycerin-water based lubrification was satisfactory for CIC according to operators' opinion.

Materials and methods

A survey was performed in April-October 2017 and September-December 2018.

An online questionnaire, in Italian, containing 20 questions was given out to healthcare professionals (*i.e.*, urologists, physiatrists and nurses) who work in Italian centers where urologic rehabilitation is provided. A subgroup of operators was interviewed after the survey to verify answers.

Questions assessed demographic data and investigated the epidemiology of the use of catheters, quality of devices, satisfaction of patients, and catheter features relevant for effectiveness of CIC.

Results

Overall, 110 healthcare professionals were invited to fill the questionnaire and 109 (72% males) answered it. They worked in 11 spinal units, 53 urology departments, 13 rehabilitation units, and in 11 units of other specialties. A total of 80% of these healthcare professionals were nurses, 14% were physicians. Centers were distributed in all regions in Italy.

TABLE I.—*Proportion (%) of cases treated with different types of treatment according to type of center, during the last month previous to the survey.*

Type of center	CIC	Transurethral	Suprapubic	Mixed	Other
Urology/urodynamic centers	57.4	27.8	7.8	6.5	0.6
Rehabilitation centers	77.0	21.0	1.9	0.1	–
Spinal units	75.9	11.0	3.0	8.6	1.9
Mean	65.2	22.3	5.5	6.3	0.6

CIC: clean intermittent catheterization.

Answers to the questionnaire showed that 65.2% of patients with urinary retention cared for during the last month previous to the survey used CIC, 22.3% used a transurethral indwelling catheter, and 5.5% used a suprapubic catheter; 6.3% of patients used CIC during the daytime and used the indwelling catheter during the night. Preferences for types of treatment were different according to the type of center, as shown in Table I. Among the patients receiving CIC 56.3% were males; 65% were 41-75 years old, and 7% were older than 76 years.

The mean number of CIC procedures was 4±0.91/day (range 3.9-5.5/day) per patient.

Several patient characteristics were considered relevant for eligibility to CIC (relevance was assessed on a numerical scale from 7=most relevant to 1=less relevant); the most relevant factor was manual ability (ranked 6.20), followed by good cognitive function (5.65), adequate anatomical condition (4.51), age (4.45), available adequate caregiver (3.70), psychological consistency (3.54) and good socio-cultural level (2.47).

Among patients cared for during the last 12 months previous to the survey, 36.5% of those receiving CIC were paraplegic, and 14.3% tetraplegic. Among patients treated with CIC during the 12 months previous to the survey 33.7% were affected with a spinal lesion, 21.8% with multiple sclerosis, 16.9% with postsurgical urinary retention, 11.7% with urinary retention for unknown causes, 8.5% with peripheral neurological lesion, and 7.4% with spina bifida.

Criteria for the adoption of different types of catheter were investigated. The importance of each criterium was rated on a numerical scale from 0 to 10 (1=absent; 2=minor; 3=very low; 4=low; 5=insufficient; 6=sufficient; 7=fairly relevant; 8=important; 9=very important; 10=crucial). Patient's need was the criterium considered most im-

TABLE II.—*Importance of criteria for the choice of the type of catheter.*

Criteria	Mean	Median
Personal needs of the patient	9.2	10
Intrinsic characteristics (*i.e.* type of point)	8.9	9
Support and experience of the producer	8.6	9
Clinical evidence	7.6	8
Experience of usage	7.5	8
Other	7	8.5
Cost	5.5	5

Scores range from 1=minor to 10=crucial.

TABLE III.—*Importance of intrinsic characteristics of the catheter for the choice of device type.*

Catheter features	Mean	Median
Lubrification	9.5	10
Usability	9.4	10
Easy positioning	9.4	10
Easy removal	9.2	10
Easy opening	9.2	9
Secrecy	8.7	9
No touch	8.6	9
Flexibility	8.5	9
Encumbrance of package	8.5	9
Type of point	8.4	9
Packaging	8.3	9
Easy disposal	8.3	9
Dripping of lubricant	7.8	8
Connector	7.7	8

Scores range from 1=minor to 10=crucial.

portant by healthcare professionals, followed by catheter features. Importance mean scores are reported in Table II.

The impact of different intrinsic features of the catheter was also investigated, finding that lubrification, usability and easy insertion were the most relevant characteristics that favored the choice of a type of device (Table III). Operators answered also that the line of catheters with glycerin-water based lubrification was satisfactory for CIC according to the main characteristics, such as usability, easy positioning, and lubrification.

Some questions investigated how the patient was trained to use a CIC. According to answers, patients are first informed about the option to adopt CIC by a physician in 70% of cases, and by a nurse in 28% of cases. However, nurses are later in charge of training for 94% of patients. Training material is used in 82% of cases: videos, booklets and, rarely, sham sessions with a dummy. Patient training has a variable duration; the mean number of training sessions is 3.5 (range: 1-10), but time spent in each session ranges from 5 to 120 minutes. A lower number of longer sessions (mean N.=2.5; mean duration 34 minutes) is used in spinal units while more and shorter sessions (mean number N.=6.1; mean duration 21.8 minutes) are used in urology departments.

Discussion

The use of CIC in the clinical practice and the perception of CIC by health operators in Italy were investigated in this survey. Although CIC has been demonstrated to be effective for bladder voiding, prevention of UTIs, control of symptoms and improvement of quality of life, many patients have a psychological resistance to use it because they feel it is invasive, difficult to use or shameful.[2] A perfect knowledge of indications and advantages may help operators to overcome patients' barrier and promote the use of a useful practice.

This survey found that more than 65% of patients with urinary retention receive CIC, independent of the underlying condition, confirming that CIC is considered the gold standard in the clinical practice. Use of CIC is more frequent in rehabilitation centers compared with urology departments, suggesting that this treatment is more often used when the aim of the healthcare professional is the patient's independence and their return to everyday activities.

Answers to the questionnaire showed that the ideal eligible patient has good manual skills, an adequate cognitive function, favorable anatomical conditions and is not old. Therefore, operators proved to be aware that CIC may be unsuitable to certain groups of patients and they usually propose it to those who may better benefit.

Italian operators seem to consider CIC as unfit for elderly patients. Indeed, relevance of advanced age for success in learning CIC is debated in the literature; as an example, while Hentzen *et al.* found that success does not depend on age but on difficulties in mobility, access to perineum and probably cognitive disorders, Sassani *et al.* found that increasing age was the only variable identified as a risk factor for failure to learn CIC.[8, 9]

Nurses are mainly involved in the management of CIC; they are in charge of the patient's training, while physicians are in charge of the choice of the device and of the proposal of CIC to the patient.

Preferred devices for CIC have good usability, lubrication and are easy to insert, and, in the opinion of operators, the line of catheters with glycerin-water based lubrification has such characteristics.

Of note, adoption of CIC follows to a strictly person-

alized analysis of needs, and the choice of the catheter is based on patient's features. This result suggests that personal needs may be more relevant than catheter characteristics.

Limitations of this study

One limitation of this study was that adherence to CIC was not investigated. Although CIC is a preferred method of bladder management, long-term adherence is low.[10] Several causes of CIC interruption were reported: recurrent UTIs, severe bowel dysfunction, urethral pain during CIC, inconvenience and urinary leakage.[10-12]

Conclusions

In conclusion, the results of our investigation in the Italian clinical practice suggested that there is a good tendency to consider CIC as a first-choice treatment for most patients, and that catheter choice is based on patient's needs and usability of the device

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