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NO-TOUCH INTERMITTENT CATHETERIZATION: AS SAFE AS THE STANDARD INTERMITTENT CATHETERIZATION TECHNIQUE?

Hypothesis / aims of study

Since the last 40 years, intermittent catheterization is a procedure commonly carried out by nurses. When it is conducted several times a day, it may lead to complications, such as urinary tract infections.[1] Evolutions in catheters have led to gel-impregnated and pre-lubricated catheters. The package and catheter are constructed in a way it can be introduced without touching it by means of a 'NO-touch sleeve'. The NO-touch method would hold several advantages compared to the two classical ways of intermittent catheterization, such as a decrease in hematuria and in the number of urinary tract infections.[2] With this trial, we want to study which method of intermittent catheterization, sterile with a catheterization set or the NO-touch method, offers the most advantages for hospitals, nurses in an acute hospital and nursing students.

Study design, materials and methods

Data were collected from October 2009 until December 2009, by means of a cross-over experimental design. Research was conducted in 4 East Flemish acute hospitals and two schools offering education in nursing. Nurses were selected by means of convenience sample. At the schools, the study was implemented in the practical lessons.

Every participant had to catheterize as well according to the NO-touch method as to the standard intermittent catheterization method on one simulation model. Before the education on the catheterization techniques, the subjects were randomized into two groups through the online randomization program "Research Randomizer". This randomization determined whether the subjects had to catheterize a male or a female simulation model.

Following general data were registered: sex, birth date, age, work status, work experience. For both classical catheterization and NO-touch method results on sterility errors, duration and comfort were registered. For every participant it was indicated if he or she catheterized a male or a female simulation model.

In total, 171 out of 174 subjects participated at the study, of which 100 nurses and 71 nursing students. Three subjects were educated on the NO-touch intermittent catheterization method, but did not participate at the actual intervention. The average age of the sample was 32 years (Sd 11.10) and 87,6% was female. Approximately 55% (93 of 171) of the participants has less than 5 years work experience. This percentage is due to the fact that 71 out of these 93 participants were students. Most nurses catheterize weekly (18.8%), followed by seldom (15.9%) and monthly (15.3%). The experience on intermittent catheterization among the students is limited to previous internships. Only 9 out of 171 participants already had experience with the NO-touch intermittent catheterization method.

Results

Multiple regression analysis shows significant results comparing the classical catheterization
method with NO-touch method for sterility errors, duration and comfort (p<,001). Work status is correlated to the time needed for classical catheterization (r(-,328); p<,000). Students seem to need significantly more time to catheterize compared to the nurses. The catheterization lasts on average 17 seconds longer for both methods (p<.005). Catheterization of the male simulation model lasts on average 11 seconds longer than catheterizing the female model (p<.033).

As to been seen in Table 1, paired samples tests indicate following results concerning sterility errors, duration and comfort when comparing the classical catheterization method with the NO-touch method.

Nurses and nursing students appear to make on average 2 more errors with the sterile intermittent catheterization method with set than with the NO-touch method (p<.0001).

The duration of the NO-touch method is on average 92 seconds less than the classical catheterization method (p<.000).

Comfort was scored on a scale with ten points, 1 is the least comfortable, 10 is the most comfortable. The classical sterile method with set scored on average 2 points lower than the NO-touch method, as well for the nurses as for the students (p<.0001).

Table 1: Classical catheterization method versus NO-touch method

N=171	Classical method		NO-touch method	
	Mean	Std. Deviation	Mean	Std. Deviation
Sterility errors (number)	2.82*	2.184	.98*	.949
Duration (seconds)	218.47*	57.644	126.34*	23.470
Comfort (score)	6.36*	1.502	8.15*	0.116

*p<.001

Interpretation of results

Results show significantly less errors with the NO-touch intermittent catheterization method. This is possibly due to the fact that with classical intermittent catheterization method with set, there are more actions involved in which sterility errors can be made. Because of the reduction in sterility errors, the risk on urinary tract infections could be reduced. However, further research is necessary to prove this.

The differences between both catheterization methods, in terms of duration, can also be explained by the fact that the NO-touch method needs less actions.
Both nurses and nursing students give better scores for the NO-touch method compared to the classical intermittent catheterization method. The average score for the classical method with set, is 6 points out of 10 versus 8 points out of 10 for the NO-touch method. However, this higher score on comfort can be the consequence of socially desirable response.

Concluding message

This research indicates that both students and nurses spend significantly less time on carrying out the NO-touch intermittent catheterization method than the classical method with set. Also significantly less sterility errors are made. And nurses and students assign a higher score to the NO-touch method, but this can be the result of social desirability. This means that the NO-touch intermittent catheterization is expected to be preferred above the classical intermittent catheterization method with set. This new method seems to be significantly better in terms of the number of sterility errors, duration and comfort. However, further research is needed to confirm this.

References

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Was this study approved by an ethics committee?	**Yes**
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