

CATHETER LENGTH PREFERENCE IN WHEELCHAIR BOUND MALE PATIENTS WHO PERFORM CLEAN INTERMITTENT CATHETERIZATION.

Hypothesis / aims of study:

Prior published literature suggests the average male urethra length is 22.3cm with a standard deviation of 2.4cm [1]. The aims of this study were to determine whether there is a patient preference in catheters of differing lengths but otherwise identical construction. The primary outcome was to assess user preference by catheter length. Secondary outcomes were ease of use, sensation of emptying, and use with receptacle or bag. Pre-study calculations concluded a sample of 81 subjects would ensure a maximum margin of error in determining preference overall is no greater than 11%.

Study design, materials and methods

This study was an unblinded multi-center, randomized, controlled, cross over study assessing self catheterizing, wheelchair bound paraplegic males who were routinely managing their neuropathic voiding dysfunction by intermittent catheterization for at least two months. Patients were given ten Test catheters (A) which were 30cm length, and ten Control catheters (B) which were 40cm in length. Seven sites enrolled patients and the randomization was balanced to site. Each site instructed patients to use all 10 of each catheter type in succession and fill out a questionnaire after each catheter and a preference questionnaire at end of use of all catheters. All patients were male, at least 18 years of age, catheterized a minimum of three times daily, and did not have mechanical, anatomic, or infectious abnormalities that might bias the results. Analysis of the primary objective was presented in tabular format using frequencies and proportions. Secondary objectives included several ease of use and one user confidence question. Although responses to these questions were provided after each catheterization, this analysis is limited to only the last catheterization. Subjects selected responses from a five-point Likert scale ranging from "Very Easy" to "Very Difficult" or from "Strongly Agree" to "Strongly Disagree", as appropriate. A comparison of the percentage of positive responses for each catheter type was calculated using the Pearson chi-square test for association $\alpha = 0.05$ (two tailed).

Results

91 male patients were enrolled in the study. 82 of the 91 subjects completed the study with thirteen hundred ninety eight subject assessments and eighty-two overall assessments of preference available for analysis. Mean age was 38 (+/- 12) years. 75 of 82 patients (91.5%) preferred the longer 40cm catheter (B) (95% CI: 85.4% and 97.5%). Reasons for preference are listed in Table 1. Twenty-three subjects (28%) were unable to drain their bladder adequately with the shorter 30cm catheter (A) and discontinued use prior to using all 10 test catheters. Secondary objectives were evaluated by questionnaire. Questionnaire data regarding ease of use is summarized in Table 2 and includes statistical analysis. There were no severe adverse events reported and 2 adverse events consisting of mild urethral bleeding.

Interpretation of results

The test catheter (A) of 30cm length proved inadequate for this randomized group of male patients to adequately drain their bladders. The fact that 23 of 82 patients were unable to complete use of all 10 test catheters (A) is demonstrative of this fact. Secondary endpoints regarding ease of use, insertion, and manipulation also favoured the 40cm catheter when compared to 30cm.

Concluding message

Wheelchair bound male patients prefer to perform clean intermittent catheterization with the standard 40cm catheter length when compared to a shorter 30cm length. The most common reason for preference of the longer catheter was patient perception of more complete bladder emptying.

Table 1.

Why did you prefer <i>that</i> catheter over the <i>other</i> ?*				
Catheter Preference				
	(A) Shorter Catheter		(B) Longer Catheter	
Response	n	Percent of total (n=7)	n	Percent of total (n=75)
Easier to handle during insertion	5	71.4	38	50.7
Easier to handle during removal	6	85.7	29	38.7
Easier to advance through urethra	4	57.1	31	41.3
Easier to drain into a receptacle	7	100	43	57.3
Drained bladder more completely	3	42.9	53	70.7
Easier to manipulate catheter for use	4	57.1	39	52
More satisfactory length for me	3	42.9	56	74.7
Other reasons	3	42.9	32	42.7

*Subjects could indicate multiple reasons for preference.

Table 2

Percentages of Ease of Use Characteristics					
			Percentages **		
			30cm	40cm	p value

Ease of insertion*			71.60%	87.65%	0.0112
Ease of removal*			87.34%	96.30%	0.0382
Ease of control while inserting*			76.25%	90.12%	0.0185
Confidence bladder drained**			36.25%	85.19%	<0.0001
Ease of draining to a receptacle*			54.55%	87.50%	<0.0001
Ease of connecting to a bag*			56.10%	71.43%	0.1461

References

1. Kohler TS, Yadven M, et al. The Length of the Male Urethra. International Braz J Urol; 34(4): 451-456, July-August, 2008.

Disclosures

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