

ASSOCIATION BETWEEN VOIDING DIARY AND 24-HOUR PAD TEST

Hypothesis / aims of study

Pad testing is an established part of the urodynamic investigation. While pad tests are recommended by the ICS, there is no agreement on what represents the best duration of testing. Short tests are easy to do, but are not reproducible¹. Longer tests do have adequate reproducibility². However, very little work has been done to assess how representative the pad loss is of the amount of leakage a patient reports in a urinary diary, or whether it correlates to other measures of leakage severity. It has always been assumed that increasing pad loss must represent worsening incontinence, although this has not been proven. We have explored the relationship between measures of incontinence recorded in a 3-day voiding diary and the 24-hour pad test.

Study design, materials and methods

Community-dwelling men and women with urinary dysfunction and aged over 40 years kept a 3-day voiding diary and completed a 24-hour pad test as part of the Leicestershire MRC Incontinence Study. Each recorded episode of incontinence was graded subjectively by the participant (Almost dry, Damp, Wet, and Soaked). Investigators scored these from 1 to 4 respectively. The sum of these scores constituted the 'leak score'. The 24-hour pad test was categorised according to the amount of leakage present (0 to 15g, 15.1 to 60g, 60.1 to 100g, >100.1g). Data are reported as median [interquartile range] and significance was set at $p < 0.05$. The Kruskal-Wallis test was used to check for differences in the number of leakage episodes, pad changes and the leak score between the different pad categories. The Chi-squared test was used to check for any association between categorical data.

Results

There were 1310 men and 2052 women. Their mean age was 64(SD 11) and 59(SD 12) years respectively. 2829 pad tests were completed with a median urine loss of 3g [1, 7]. Table 1 shows that the number of leakage episodes, pad changes and leak score increased significantly with increasing severity of pad loss.

Table 1

Pad category	No. of leakage episodes N=2649	No. of pad changes N=2696	Leak score N=2649
0 to 15g	1 [0, 6]	0 [0, 0]	2 [0, 10]
15.1 to 60g	10 [5, 17]	0 [0, 6]	20 [9, 30]
60.1 to 100g	15 [7, 19]	8 [0, 14]	31 [13, 41]
>100.1g	19 [13, 25]	11 [2, 17]	45 [31, 60]
	p 0.0001	p 0.0005	p 0.0002

Tables 2 and 3 show significant associations between increasing grade of the severest and commonest leak recorded and increasing severity of pad loss ($p < 0.0002$ for both).

Table 2

	Severest leak recorded %				
Pad category	No leak N=1017	Almost dry N=409	Damp N=738	Wet N=360	Soaked N=75
0 to 15g	97.9	96.1	88.3	59.7	25.3
15.1 to 60g	1.9	3.9	11.0	31.7	29.3
60.1 to 100g	0.1	0	0.7	5.3	9.3
>100.1g	0.1	0	0	3.3	36.0

Table 3

Pad category	Commonest leak recorded %				
	No leak N=1155	Almost dry N=754	Damp N=662	Wet N=70	Soaked N=8
0 to 15g	95.5	89.3	75.1	57.1	37.5
15.1 to 60g	3.7	9.5	19.5	14.3	37.5
60.1 to 100g	0.3	0.7	2.9	2.9	25.0
>100.1g	0.4	0.5	2.6	25.7	0

Interpretation of results

Increasing severity of categorised 24-hour pad loss is associated with worsening diary measures of leakage and reported severity of leakage.

Concluding message

The 24 hour pad test is a reproducible assesement of leakage which correlates with other ways of assessing leak severity. Our data support the long-held assumption that severe pad loss represents severe incontinence.

References

1. Simon AM, Yoong WC, Buckland S, Moore KH. Inadequate repeatability of the one-hour pad tests: the need for a new incontinence outcome measure. BJOG 2001;108:315-9.
2. Siltberg H, Victor A, Larsson G. Pad weighing tests: the best way to quantify urine loss in patients with incontinence. Acta Obstet Gynecol Scand 1997;76 Suppl116: 28-32.