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RELIABILITY OF DAIRY DATA ON VOIDING FREQUENCY AND INCONTINENCE EPISODE

Aims of Study: To assess recall data reliability and diary data variability on frequency of voiding or incontinence episode.

Methods: Symptomatically stable patients with urinary frequency and/or incontinence kept a voiding diary for 2 weeks. Before and after diary patients recalled the average numbers of voiding and incontinence during the precedent 2 weeks. The collected data were analyzed for the reliability of recall data and variability of diary data using SAS system. The average of diary data was regarded as the gold standard. Applicable mathematical models and parameters were heuristically explored to fit the distribution. To confirm the applicability, the diary records of 32 urge incontinent patients and 40 stress incontinent patients, which had been stored previously, were attempted.

Results: The cohort comprised 73 patients (58 women and 15 men) aged 63.5 11.3 years (meanSD), of whom 49 complained incontinence, and the remaining 24, frequency only. Recall frequency was larger than gold standard, and the difference was 0.52.1 (-6.3~4.7) and 0.71.6 (-6.0~4.3) (meanSD and range) for voiding and incontinence, respectively. The difference was consistent before and after diary. Urinary frequency appears to follow Gauss distribution and was expressed as 10.13.1 (mean SD). Mixed model indicated day-to-day variance as 1.98, giving 95% confidence interval for individual mean as [mean1.96*1.41/n] (here, n represents the number of observation in days). As for incontinence frequency, the variance of

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individuals' average was estimated as large as 11.1 with a mean of 2.0. Given individual's own average, frequency of incontinence episode in an individual could be assumed Poisson distribution according to the Poisson's law of small numbers. This assumption would be reasonable, since individual's mean is equal or more than variance for almost all patients. Using these presumed parameters, variability (95% confidence interval) for frequencies of voiding and incontinence were calculated (Tables). For example, urinary frequency of 8 calculated by 3-day diary recording indicates the true frequency is 6.41to 9.59(81.59) at a probability of 95%. Similarly an average dairy incontinence episode of 3 calculated by 7-day observation implies the true value between 1.72 and 4.28(31.28). The confirmatory study showed the reasonable fitting of the model and parameters to both urge and stress incontinent populations

Conclusions: Patients' recall on voiding frequency and incontinence episode would not be sufficiently reliable. Urinary diary enhances reliability, and confidence interval of diary recordings was given in a relatively simple fashion. These intervals should be appreciated in assessing the symptom severity and comparing a paired data of specific subjects.

Variability of dairy voiding frequency

Mean	Observation period (days)			
	3	7	10	14
Any value	1.59	1.04	0.87	0.28

Variability of dairy incontinence frequency

Mean	Observation period (days)			
	3	7	10	14
0.5	0.80	0.52	0.44	0.37
1	1.13	0.74	0.62	0.52
3	1.96	1.28	1.07	0.91
5	2.53	1.66	1.39	1.17
10	3.58	2.34	1.96	1.66

95% confidence interval is given as mean table figure.