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DEVELOPMENT AND USEFULNESS OF PRELIMINARY MODEL OF APPLICATION SOFTWARE FOR MANAGEMENT OF FREQUENCY–VOLUME CHARTS

Hypothesis / aims of study

The frequency–volume chart (FVC) is a useful, inexpensive method for evaluating voiding characteristics in patients with lower urinary tract symptoms. However, because the results of this examination are generally shown in tabular form, it is frequently difficult for urologists to estimate FVC results meticulously in an outpatient setting, especially according to the criteria determined by the International Continence Society (ICS). In order to resolve this problem, we have developed multifunctional computer software to manage FVCs. In the present study, we described this FVC management system and evaluated its usefulness in an actual clinical setting.

Study design, materials and methods

The FVC-management system was constructed on a personal computer, in which the core application had been installed, along with a printer and scanner (Fig. 1). We used a computer-scored answer sheet for FVCs. When the FVC sheets marked by patients were scanned, the data on the FVC were automatically read and entered into the computer. As well as the FVC data themselves, the parameters outputted by this system were urine volume produced (per day, during the day and during the night), voiding frequency (per day, during the day, and during the night), and average, minimum and maximum urine volume voided (during the entire day, and during daytime and nighttime) (Fig. 2). When multiple days were under examination, these parameters could be averaged. Polyuria and nocturnal polyuria were judged according to given criteria. Two types of graphs could be illustrated by this application: one showed the genuine data of the timing of micturition and the voided volume based on the FVC, and the other showed the urine volume produced in 10 minutes. Fifteen patients tried this system and assessed its usefulness.

Results

It took ~3 minutes to print out the FVC sheets for 3 days, and ~3.5 minutes to acquire the data for 1 day. The patients made an average 0.5 mistakes/day that required manual correction, and the data were easily corrected. Most patients answered that a graphic explanation was easily understood, but forty percent of patients found the marking troublesome (Fig. 3).

Interpretation of results

The accuracy of data acquisition by the computer was acceptable, and two types of graphs were effective for visual presentation of the results.

Concluding message

This system could be helpful for office urologists to evaluate FVC data. The development of a more understandable FVC sheet and the speeding up of system performance are required.

Fig. 1: Equipment used in the construction of the FVC-management system.

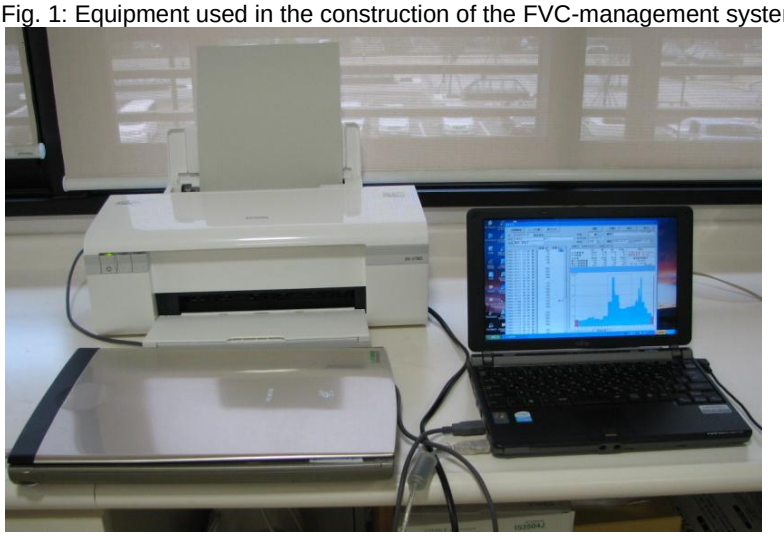


Fig. 2: Sample of the results output.

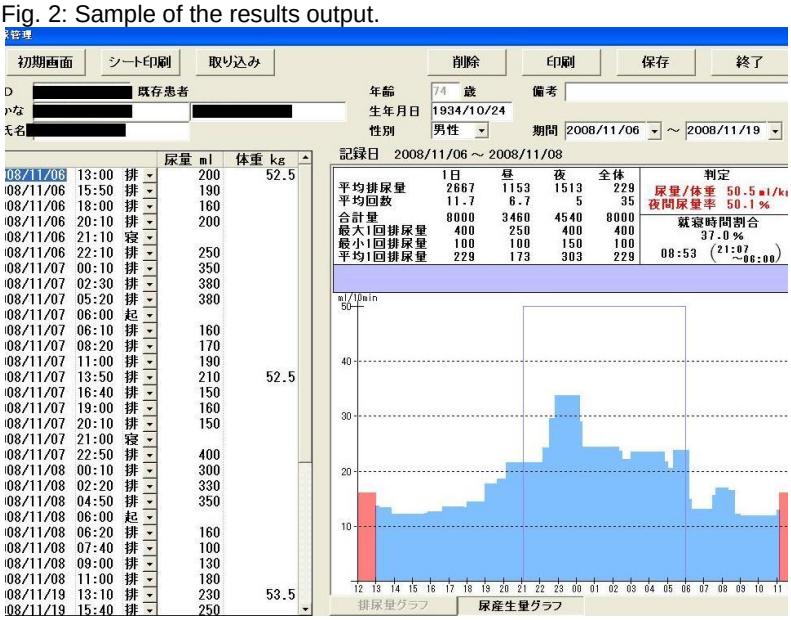
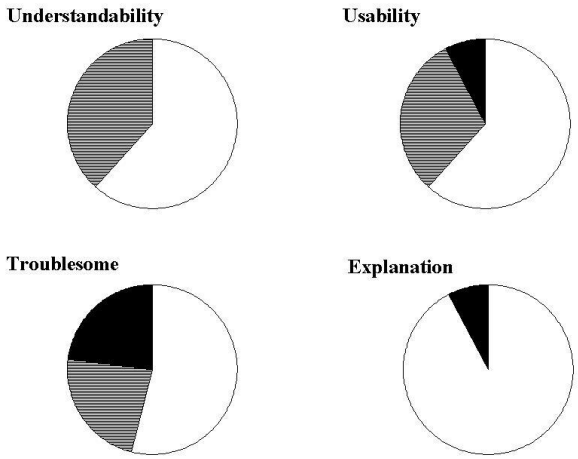


Fig. 3: Patient assessment of the FVC-management system.



White area: good, gray area: moderate, black area: bad

Specify source of funding or grant	**None**
Is this a clinical trial?	**Yes**
Is this study registered in a public clinical trials registry?	**No**
What were the subjects in the study?	**HUMAN**
Was this study approved by an ethics committee?	**Yes**
Specify Name of Ethics Committee	**Kyoto University Ethical Comittee**
Was the Declaration of Helsinki followed?	**Yes**
Was informed consent obtained from the patients?	**Yes**