

BLADDER BEHAVIOR IN RESPONSE TO DIURESIS DURING DAYTIME AND NIGHT TIME

Aims of Study

Response of bladder to diuresis has been considered to primarily increase micturition frequency. However, in addition to micturition frequency, an increase in bladder volume may be another type of bladder response to diuresis. Furthermore, it is commonly experienced that a considerable amount of urine is excreted at the time of first morning void. This may suggest that bladder can store more volume of urine during the night (sleep). Since these aspects of bladder behavior remain to be clarified, the present study investigates bladder responses to diuresis during the daytime and the night in terms of bladder capacity and micturition frequency.

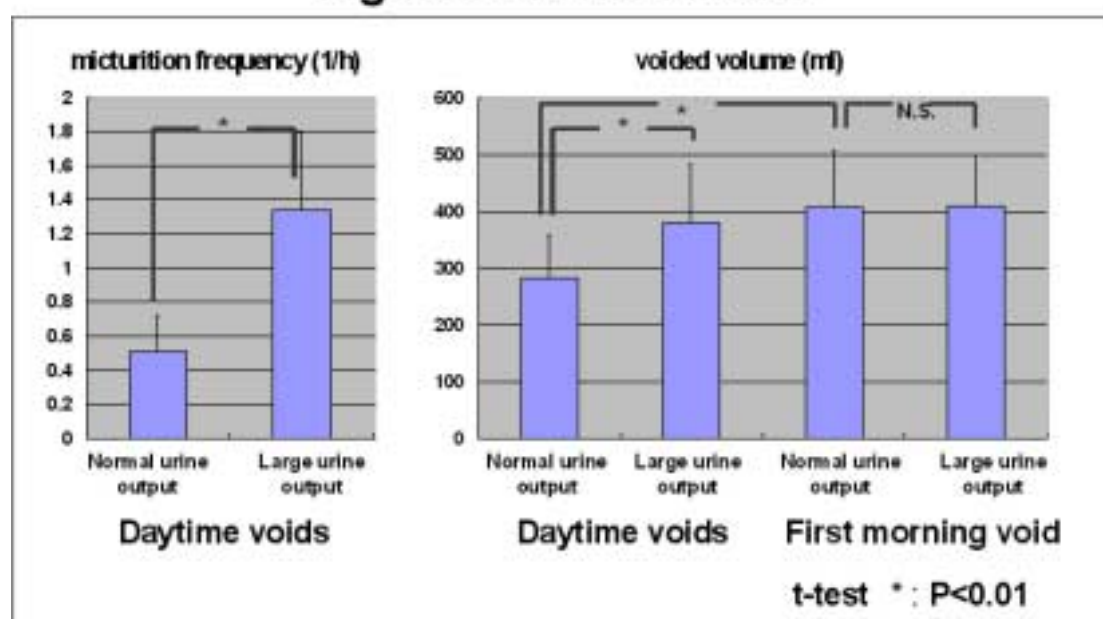
Methods

Fifteen men (mean age 31.3 with a range of 18 – 45 years old) without lower urinary tract symptoms were included in this study. All subjects were asked to complete a 24-hour frequency volume chart (FVC) over 20 days. They were also asked to increase water intake for 7 to 10 days during this study. In order to evaluate the influence of diuresis, the data from FVC were divided into two groups; normal urine output (<2500ml/day) or large urine output (>2500ml/day). The following parameters were estimated; 1) voided volume of each micturition (VV, ml), 2) frequency of each micturition (MF, h⁻¹).

Results

Figure shows statistical analyses of mean MF and VV as overall results of the daytime. These data clearly demonstrate that in response to diuresis, bladder increased both VV and MF with increasing diuresis in the daytime. On the other hand, regardless of the amount of urine output, the night time part of FVC revealed stable bladder condition. Compared to the daytime, bladder responded to diuresis with lower MF and larger VV in the night time. These data suggest that nocturnal bladder behavior is basically different from daytime bladder behavior.

Figure. Overall results



Conclusions

These results suggest that during the daytime, bladder responds to diuresis by not only increasing micturition frequency but also increasing bladder capacity. It is also demonstrated that regardless of the extent of diuresis, bladder capacity is larger as compared to the daytime bladder capacity. This may suggest that sleep can increase the bladder capacity. The possible underlying mechanism may be that sleep may stimulate the storage centre in the brain stem.