

References

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DOES NIGHTTIME INCONTINENCE DISRUPT SLEEP IN GERIATRIC PATIENTS?

AIMS OF STUDY

Nocturia and nighttime incontinence are common problems in the geriatric population. Although these conditions may cause sleep disruption, the relationship between nighttime incontinence and sleep has not been carefully examined. Thus, it remains unknown if incontinence causes awakening, or if incontinence occurs in association with other conditions that cause sleep disruption. Answers to these questions have critical therapeutic implications. We therefore undertook this study in order to better define the relationship between nighttime incontinence and sleep disruption in geriatric patients using state-of-the-art polysomnographic techniques. To our knowledge, this is the first report examining these relationships in geriatric patients using polysomnography.

METHODS

Older subjects with chronic nighttime incontinence were recruited from one community and one VA long-term care facility. Each subject for whom consent was obtained and who had at least two nighttime incontinence episodes verified by research staff checks, underwent an overnight sleep study in their own bed using portable polysomnographic equipment. The equipment was interfaced wirelessly with a wetness monitor (Drytime, Healthsense, Inc.) so that sleep state at the time of an incontinence episode could be determined. Bedside noise and light monitors were also interfaced with the polysomnograph in order to identify awakenings associated with environmental factors. Sleep studies were interpreted by a trained sleep technician and an experienced sleep researcher. Volumes of all incontinence episodes were calculated by re-weighing pre-weighed pads.

RESULTS

Data from the first 27 overnight sleep studies in 21 subjects have been analyzed. Subjects included four females and 17 males, with average age 79. A total of 121 incontinence episodes occurred during the 27 nights of monitoring, of which 38 were excluded because they occurred when the subject had already been awake for longer than 10 minutes. Among the remaining 83 episodes, 56 (68%) occurred during a period of awakening that had begun within the prior 10 minutes, and 24 (29%) occurred during sleep. Of the latter 24 episodes, 21 (88%) were associated with awakening within the subsequent 10 minutes. The mean duration of sleep after these 21 episodes was 99 +/- 104 seconds, and in 7 of these 21 the subject awoke within 30 seconds. We also noted that incontinence was associated with sleep apnea or hypopnea in 17 of the 24 episodes (71%) that occurred during sleep. Incontinence volumes of the 24 episodes that occurred during sleep were significantly lower than volumes of episodes that occurred during wakefulness (117.5 +/- 70.8 ml vs 184.0 +/- 96.0; $t = 3.05$, $p < .005$).

CONCLUSIONS

Our data suggest that when nighttime incontinence occurs in older patients during polysomnographically defined sleep, it is associated with an awakening shortly thereafter. In addition, it appears that a large proportion of incontinence episodes occur in close temporal relationship to an episode of sleep apnea or hypopnea. This observation gives rise to the interesting possibility that a specific sleep disorder may play an important role in the pathophysiology of nighttime incontinence in some older patients. More subjects and more incontinence episodes that occur during sleep must be studied in order to make any definitive conclusions. However, our data thus far reinforce the clinical impression that nighttime incontinence does cause sleep disruption, and provide additional rationale for investigating and treating this common condition in the geriatric population.