

STUDY ON THE USE OF DIAPERS FOR ELDERLY WOMEN WITH INCONTINENCE AT NIGHT AND THEIR WAKEFULNESS AND QUALITY OF SLEEP.

Hypothesis / aims of study

The study compared the frequency of the use of diapers in facilities for the elderly with incontinence in Japan and European countries and reported that use in Japan is extremely high. This is because elderly residents of facilities who are able to go to the toilet during the day are given diapers for urinating at night due to manpower shortages and fall prevention strategies. In Japan in 1984, polymer absorbent adult diapers began to be used. The improved water absorption capacity of diapers gave birth to all-night use of diapers for elderly with urinary incontinence.

On the other hand, the quality of night sleep (Quality of Sleep: less QOS) in elderly decreases as they age. Elderly women in particular, often have residual urine due to the effects of chronic cystitis or anti diuretic hormones with 72% of 80 year old women experiencing frequent urination at night which can contribute to sleep disorders.

Additionally, as changing diapers or assisting elderly to urinate during the night causes them to wake-up they are often left in wet diapers until scheduled assisted urination times. However, there have been reports of concern over loss of the urge to urinate, increases in the amount of urine incontinence and increased trouble sleeping at night due to the improper use of diapers. In other research showed significant correlation between urinary incontinence and residual urine volume and the activeness of patients and the effects of this on nighttime sleep and wakefulness has also become clear.

But studies revealing the effects on QOS of individual nursing care for the elderly using a diaper at night are scarce.

Are seniors who are left to use diapers with incontinence at night really able to sleep soundly?

We think that nurses changing diapers at night or taking patients to the toilet in accordance with their toilet patterns will be of great significance in clarifying the inhibits to sleep.

This study investigated the state of incontinence in facilities providing nursing care to elderly women at night. After this, appropriate care was given to elderly women with incontinence and the effects of sleep and wakefulness due to using diapers at night examined.

Study design, materials and methods

The subjects were 38 residents of nursing homes who met the selection criteria. Among these 2 did not give consent as they complained of stiff shoulders due to metal allergies or use of watches. Of those who consented, 3 left the facility during the study and 4 others were rejected for either taking off the actigraphs for measuring cognitive function due to dementia related mood changes resulting in a significant loss of measured data analysis. The data of the remaining 29 people was analyzed.

All subjects underwent urinary tract management using diapers. A random check of the number of times diapers were changed at night in three day periods was conducted (herein the control period) and 3 nights of care appropriate for individual patients urination was conducted (herein intervention period). During that time, an actigraphy (United States AMI Inc.) sleep survey was carried out. The intervention entailed making sure of the elderly patients' urge to urinate, taking them to the bathroom and using diaper sensors and changing diapers immediately after urinary incontinence.

After this study received approval by the Oita University Ethics Committee, managers of the research facilities, subjects and subject's families received explanations both verbally and in writing and consent was received.

Results

The average age of the 29 subjects in the facility's target was 86.5 ± 4.2 years all of who underwent urinary tract management using diapers.

10 patients (34.4%) had FIM motor features scores of less than 20 points while 19 patients (65.6%) had more than 20 points. FIM motor functions in this study Cronbach coefficient were 0.98.

Maximum urinary incontinence at night were 124.7 ± 174.4 ml among those who said they wanted to urinate 316.4 ± 177.9 ml in those who didn't say they wanted to urinate. The level of urine incontinence were significantly higher ($P < 0.01$) in those who didn't say they wanted to urinate. Maximum urinary incontinence at night during the control period was 458.2 ± 319.2 ml and 284.7 ± 176.7 ml in the intervention period, which was significant more for the control period ($P < 0.05$).

The average frequency that diapers were changed or patients went to the bathroom during the control period was $1.4 (\pm 1.4)$ times while in the intervention period it was $4.5 (\pm 1.4)$ which was significantly more ($P < 0.05$).

Subjects' total sleep time at night of the control period was 392.1 ± 98.9 minutes while during the intervention period it was 412.0 ± 86.0 minutes. Subjects' average sleep time during the control period was 31.6 ± 17.3 minutes while during the intervention period it was 62.7 ± 73.8 which is significantly longer for the intervention period ($p < 0.05$). The longest sleep time during the control period was 112.6 ± 65.1 minutes and 164.5 ± 87.9 minutes during the intervention period which shows that the time until sleep was interrupted by intervention was significantly longer ($p < 0.01$). On the other hand, the average wakeful time during the control period was 21.9 ± 10.3 minutes while it was 10.7 ± 6.04 minutes during the intervention period, which shows the wakeful time was significantly longer ($p < 0.001$) during the control period. The longest wakeful time during the control period was 46.1 ± 39.7 minutes and 87.8 ± 42.3 minutes during the intervention period making the intervention period significantly longer ($p < 0.001$).

Interpretation of results

The result of comparing the sleep and wake patterns of patients receiving regular nighttime urinary care and individual urinary care was that the average sleep time and the maximum sleep time is significantly for those receiving individual care.

Elderly patients do wake up after receiving urinary care each time, but may possibly be sleeping longer afterwards. In addition, while the average wakeful time and longest wakeful time were significantly longer in the intervention period it is thought that this may be due to taking patients who urinated into diapers in the control period to the bathroom to urinate in the toilet. The results

of this study into the nursing care of elderly women with incontinence indicated that while changing diapers or taking them to the bathroom did temporarily increase wakefulness, there was an improvement of the quality of sleep following.

Concluding message

This suggests that compared to scheduled diaper changes and decreasing the frequency of diaper changing and leaving diapers wet after incontinence, changing diapers immediately after incontinence may allow patients to feel better and have an improved quality of sleep.

Disclosures

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