

A STUDY INTO THE NURSING CARE OF INSTITUTIONALIZED ELDERLY WOMEN WITH DEMENTIA AND URINARY INCONTINENCE, THE QUALITY OF THEIR SLEEP, AND DAYTIME ACTIVENESS

Hypothesis / aims of study

Urinary incontinence is a social and hygienic problem of involuntary urination and is a common health problem for women. It has been reported that in Japan, 50% of people aged over 60 have urinary incontinence. It is said that urinary incontinence significantly decreases QOL (Quality of life) as it leads to urinary tract infections, physical dysfunction in seniors, bed-ridden elderly and causes dementia in the elderly. Additionally, a 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 bathroom during the day are given diapers for urinating at night due to manpower shortages and strategies to prevent falling. 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, some reports have warned that improper use of diapers causes patients to lose awareness of their urge to urinate, increases the amount of urine incontinence, increases sleep disturbance and decreases cognitive function. In other studies a connection was found between residual urine volume, urinary incontinence and the amount of daytime activities and it became obvious that these affect sleep and daytime activeness. However, few studies have revealed effects on sleep and activity of individual nursing care for the elderly with dementia who are using diapers. Are seniors who are left to use diapers with incontinence at night really able to sleep soundly? We believe it is of great significance to uncover whether nurses changing diapers and taking patients to the bathroom in line with individual patients' urination patterns inhibits sleep at night or daytime activities. This study is to examine the urinary condition of elderly women with dementia who require nursing care and are institutionalized. After that, proper care was provided for women with urinary incontinence that require nursing care and the impact on sleep and daytime activities of the use of diapers was examined.

Study design, materials and methods

The subjects were 30 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 21 people was analysed. 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 subjects urination was conducted (herein intervention period). In the meantime an actigraphy (United States AML Inc.) survey of sleep and daytime activities was carried out. The intervention entailed making sure of the elderly subjects' urge to urinate, taking them to the bathroom and using diaper sensors then changing diapers immediately after urinary incontinence.

Results

The average age of the 23 subjects in the facility's target was 88.1 (± 7.3) years all of who underwent urinary tract management using diapers. Six subjects showed signs of a mild decrease in cognitive functioning (MMSE = 20 points or more) with an average of 24.8 (± 2.28); three subjects showed a moderate decrease in cognitive function (MMSE = 10-19 points) with an average of 10.67 (± 4.04); and fourteen subjects showed an advanced decrease in cognitive function (MMSE = 0-9 points) with an average of 0.29 (± 0.61). Physical dysfunction (FIM) in those with a mild decrease in cognitive function was 73.0 (± 11.6) while it was 54.7 (± 20.2) for those with a moderate decrease in cognitive function and 17.4 (± 7.1) for those with an advanced decrease in cognitive function.

QOL (QLDJ) was 41.20 (± 6.5) for those with a mild decrease in cognitive function, 54.7 (± 20.2) for those with a moderate decrease in cognitive function and 17.4 (± 7.1) was for those with an advanced decrease in cognitive function.

The number of times per night that urination care was conducted during the control period was 1.35 (± 1.40) and 4.47 (± 1.39) times during the intervention period showing a significant increase in the amount of care during the intervention period. The quantity of urine incontinence during the control period was 271.78 (± 393.50) ml while during the intervention period it was 242.22 (± 211.46) ml showing subjects were less prone to urine incontinence during the intervention period.

The total sleep time at night for the 6 subjects with a mild decrease in cognitive function was 381.17 (± 97.49) minutes during the control period, but during the intervention period it was 407.22 (± 67.85). Sleep efficiency during the control period was 69.00 (± 30.29) per cent while during the intervention period it was 79.45 (± 12.59) per cent showing that intervening leads to longer sleep time at night and an increase in sleep efficiency. A tendency for a decrease in the frequency partial waking up and fully waking overnight was also noticed.

Daytime activeness during the control period was 139.96 (± 30.94) and during the intervention period was 141.40 (± 39.25). The total sleep time at night for the 3 subjects with a moderate decrease in cognitive function was 366.83 (± 113.10) during the control period and 443.42 (± 116.64) during the intervention period. Sleep efficiency during the control period was 73.94 (± 14.78) per cent compared to 85.90 (± 14.51) per cent during the intervention period showing that intervening leads to a longer sleep time at night and an increase in sleep efficiency. No change was noticed in the frequency in partially and fully awakening between the control

period and the intervention period. Daytime activeness during the control period was 79.97 (± 11.91) and during the intervention period was 77.37 (± 14.51).

The total sleep time at night for the 14 subjects with advanced decrease in cognitive function during the control period was 421.48 (± 103.36) minutes while during the intervention period it was 431.19 \pm 81.40. Sleep efficiency during the control period was 74.71 (± 34.67) per cent while during the intervention period it was 78.66 (± 21.30) per cent showing a longer sleeping time during the intervention period and also higher sleep efficiency. No change was noticed in the frequency in partially and fully awakening between the control period and the intervention period. Daytime activeness during the control period was 68.20 (± 28.24) and during the intervention period was 65.68 (± 34.56).

Interpretation of results

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

It was also found that for subjects with milder cognitive impairment, the maximum sleep time is longer and there is a tendency to increase the amount of daytime activities.

It has been pointed out that it is hard for subjects with dementia to fall back asleep after waking up. By changing diapers immediately after urination, taking subjects to the bathroom according to their individual needs the quantity of urine incontinence decreased and subjects were more comfortable. This resulted in a deeper and longer sleep than if they had been left in wet diapers. This in turn leads to an increase in daytime activities and improved cognitive function.

Concluding message

It is suggested that instead of changing diapers at set times, decreasing the number of times patients are woken to change diapers and leaving patients to sleep in wet diapers, changing diapers when incontinence occurs leads to a more comfortable, higher quality of sleep which may result in an increase in daytime activities and better cognitive function.

Disclosures

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Informed Consent: Yes