Self-reported sleep of post-operative cardiac surgery patients: preliminary data

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Abstract

Hospitalized persons recovering from coronary artery bypass surgery (CABS) frequently report sleep pattern disturbances. The purpose of this study was to examine self-reported sleep patterns of cardiac surgery patients during hospitalization using a descriptive design. Twenty-nine cardiac surgery patients (23 men and 6 women, mean age = 67 years) completed daily sleep diaries for the second through the fifth post-operative days. The most frequently reported sleep difficulties were daytime sleepiness, difficulty staying asleep, and early morning awakenings. Sleep quality was poor, and patients received only 4-5 hours of sleep per night. The most frequently reported cause of sleep disturbance was nursing/medical interventions. Few patients received sleep-promoting interventions. These data suggest the need to develop strategies to improve sleep in these patients. Self-reported sleep diary information shows significant sleep disturbance patterns in post-operative CABS patients.

Purpose

The purpose of this study was to examine the self-reported sleep patterns of cardiac surgery patients during hospitalization using a descriptive design focusing on difficulties in falling asleep and staying asleep at night, daytime sleepiness, and inadequate nighttime sleep.

Background

According to the American Heart Association, coronary artery bypass surgery is the most common open-heart procedure performed in the United States and has increased 432% from 1979 to 1997 (American Heart Association, 2000). Indications for cardiac surgery, both graft and valve procedures, include: coronary artery disease, aortic/mitral stenosis and regurgitation, congenital heart defects, and ventricular disrrhythmias (Lewis, Collier, and Heitkemper, 1996). As many as fifty percent of patients recovering from cardiac surgery report sleep problems (Simpson, Lee, and Cameron, 1996).

Functional outcomes of CABS patients may be affected by alterations in sleep patterns. Factors that affect sleep rhythms during hospitalization may include: cardio-pulmonary bypass time, anesthesia, the use of psychotropic medications, postoperative pain, fatigue, anxiety, noise, as well as interruptions for monitoring and treatment (Redeker, Mason, Wykpisz, and Glica, 1996). The nature of sleep disturbances during hospitalization must be better understood to support the improvement of interventions provided by nurses in the care of postoperative CABS patients.

Materials and methods

Variables/Instruments

The study outcome variables of interest are: 1) specific reported sleep difficulties including falling and staying asleep, daytime sleepiness, early awakenings, and sleep medications; 2) nightly hours of sleep; 3) self-reported quality of sleep; 4) causes of nighttime sleep disturbance; and 5) strategies used to promote sleep.

The aforementioned variables were all measured using a sleep diary adapted from a Sleep/Activity Diary developed by Redeker, Tamburri, and Howland (1998) and by Conaway and the Sleep Heart Health Study (1997).

Procedure

IRB approval was obtained by Rutgers University and Robert Wood Johnson University Hospital. Participants were recruited pre-operatively during a visit to the cardiac surgeon. Informed consent was also obtained at this time. Post-operatively, participants completed sleep diaries recalling previous night's sleep for post-operative nights 2, 3, and 4. These patients were visited daily in the hospital by research assistants in order to facilitate completion of this form.

Group/Population

Delimitations:

- First time CABS and valve replacement patients only
- No end stage renal disease, renal dialysis, psychiatric disorders according to DSM-IV or concurrent use of psychiatric medications, history of cerebrovascular accident, history of movement disorders
- English-speaking
- Cognitively intact

Demographics:

The following data are based on the present total of 29 subjects, with a mean age of 67 years (range 45 to 81 years), of whom 6 (21%) were female and 23 (79%) were male.

Results

We present here data obtained using the sleep diary instrument (Tables 1-5).

Table 1: Percentage of participants with specific sleep difficulties.

	Day 1	Day 2	Day 3
Fall asleep	15/52%	9/31%	17/59%
Stay asleep	22/75%	13/46%	18/61%
Daytime sleepiness	22/86%	23/79%	18/62%
Early awakening	22/75%	16/55%	18/61%
Use of sleeping pills	6/21%	11/39%	11/38%

Table 2: Nightly hours of sleep over 3 days.

Day 1	Day 2	Day 3
5	5.7	4.8

Table 3: Self-reported sleep quality over days 1 — 3
(0 = worst sleep / 10 = best sleep)

Day 1	Day 2	Day 3
3.4	4.4	4.3

Table 4: Causes of nighttime sleep disturbances.

Cause of sleep disturbance	% of sample
No reported causes	6/21%
Own symptoms (pain)	5/17%
Roommate/Other patient	4/14%
Nursing/Medical procedure, vital signs	14/48%

Table 5: Strategies used to promote sleep.

Strategy	% Time used
Nothing	22/75%
Pain medication	3/10%
Radio/TV	1/3%
Read	1/3%
Sleep medication	2/6%

Discussion

The most frequently reported sleep difficulty was daytime sleepiness which declined over the three day period. Other reports of sleep problems decreased on day 2. In general, all difficulties increased again on day 3. Our results illustrate the underuse of sleep medications and corroborate a study by Simpson et al. (1996) that shows that less than a quarter of patients receive any hypnotic medication post-operatively.

Results show that although number of hours of sleep increased on day 2, on day 3, they again decreased to a level less than that of Day 1. More research needs to be conducted in order to explore variation, especially since self-reported sleep quality of day 2 and day 3 is fairly consistent (See Table 3).

Our results demonstrate that routine nursing/medical activities are the most frequently reported causes of nighttime sleep disturbances. These findings indicate the need to cluster nursing care to promote longer sleep periods. Interventions such as bathing, medication administration, taking vital signs, and collecting samples for laboratory work should be timed to allow adequate time for sleep (Redeker et al., 1996). Moore (1997) corroborates these findings when she suggests that appropriate nursing interventions need to be developed to promote patient comfort, safety, and optimal cardiovascular surgery outcomes. The above results also indicate the need to further educate patients and nurses in both pharmacological and non-pharmacological methods to promote sleep such as warm baths, dim lights, soft music, and sleep medication.

Conclusion

Since sleep disturbance is very common in cardiac surgery as evidenced by our findings, new nursing interventions need to be implemented and maintained. Our results show that the most frequent concerns in post-operative CABS patients are daytime sleepiness, staying asleep, early morning awakenings, and difficulty falling asleep. This data once again emphasize the need for planned strategies to promote

sleep.

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