

CANCER-RELATED INSOMNIA AND WIRELESS TECHNOLOGY: A FEASIBILITY STUDY

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BACKGROUND

- Cancer-related insomnia (CRI):¹
 - a. Difficulty with sleep onset or maintenance
 - b. Early morning waking
 - c. Non-restorative sleep
- Prevalence in cancer: 30-75%¹
- Under-reported, overlooked and impairs quality of life²
- Objective measures previously required sleep laboratories³
- Wireless technology advances enhance ability to measure sleep in real-time in the natural environment³

OBJECTIVES

1. Determine feasibility & acceptability of a wireless sleep monitor to measure sleep in cancer
2. Correlate objective results with subjective reports

METHODS

Study Design

- Prospective observational study
 - Stage A: 10 consecutive hospice inpatients
 - Stage B: 20 consecutive community patients
- Preceded by healthy volunteer pilot

Figure 1: SleepMinder™ Bedside Sleep Monitor



Data Collection

- Subjective:
 - a. Insomnia Severity Index (ISI) & Symptoms
 - b. Sleep diary for 3 nights
- Non-contact biomotion sleep monitor (SleepMinder™): 3 nights
- Acceptability questionnaire
- Descriptive statistics: SPSS Version 22

DISCUSSION

- Insomnia prevalence correlates with previous studies
- Objective results should complement subjective report
- Limitations to wider application:
 - Small sample size
 - Short duration (< 7 nights)

REFERENCES:

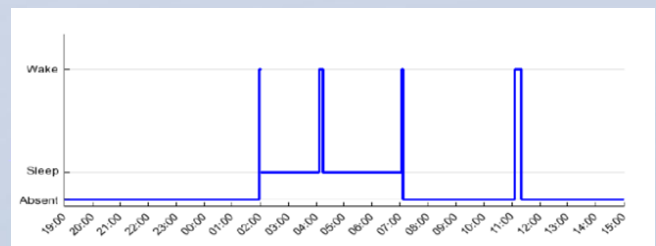
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2. Howell D et al. A Pan-Canadian practice guideline: screening, assessment and treatment of sleep disturbance in adults with cancer. Support Care Cancer, 2013; (21): 2695-2706
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RESULTS

Demographics

- 30 participants: 16 M & 14 F
- 31 participants recruited: 1 withdrew
- Diagnosis: Gastrointestinal (11); Lung (8); Breast (7); Other (4)
- Median ECOG Performance Status: 2 (Range 1-3)

Figure 2: Example of Sleep Report Generated by Device



Objective Device Results

Sleep Characteristics	Inpatient (n=10)	Community (n=20)
Insomnia characteristics present	70%	75%
Sleep onset (latency) >30 mins	70%	20%
Poor maintenance (awake >30 mins)	30%	70%
Median number of awakenings	1 (1-7)	4 (1-8)
Early morning waking	0%	0%

Subjective v Objective Sleep

Correlation Coefficient (rho)	Inpatient	Community
ISI Score	0.6 (p=0.07)	0.37 (p=0.11)
Diary-Rated Sleep	0.33 (p=0.35)	0.5 (p<0.05)*

* Statistical Significance

Device Acceptability

- 100% acceptability in patient, family and nurse

CONCLUSIONS

1. Bedside monitor effectively measures sleep in cancer
2. High acceptability supports clinical use
3. Enables ambient patient-centred care
4. Cancer-related insomnia features common
5. Subjective & objective measures correlate poorly
6. Future studies should evaluate insomnia intervention