Symptom Management Guidelines: SLEEP-WAKE DISTURBANCE

NCI GRADE AND MANAGEMENT | RESOURCES | CONTRIBUTING FACTORS | APPENDIX

Definition(s)

Sleep–Wake Disturbance: Perceived or actual alterations in sleep resulting in daytime impairment. Clinically it is manifested by difficulty falling or staying asleep, early morning awakenings, nonrestorative sleep and or daytime sleepiness. Includes sleep disorders such as: insomnia, sleep apnea, and sleep–related movement disorders. They may occur during all phases of the cancer trajectory.

Insomnia: Difficulty falling asleep, staying asleep and/or early awakening or non-restorative sleep that causes significant distress and impairs function. Insomnia is the most common category of sleep disorder. It is important to rule out other sleep disorders. **See *Appendix A: Sleep-Wake Disturbances – Contributing Factors and Consequences***

Focused Health Assessment

PHYSICAL ASSESSMENT

Vital Signs

- Frequency – as clinically indicated

Observe for:

- Dark circles under eyes
- Drooping eyelids (ptosis)
- Nystagmus (involuntary eye movement)
- Frequent yawning
- Slurred speech, incorrect word usage

Functional Status

- Activity level/ECOG or PPS

SYMPTOM ASSESSMENT

Normal

- What are your normal sleep patterns?
- What time do you go to bed at night? How long does it take you to fall asleep? What time do you get up? Do you nap during the day?

Onset - When did you become aware of a change in sleep patterns?

Provoking / Palliating

- Assess bedtime routines. Do you know what brings on sleeping problems? Makes it better? Worse?
- Explore possible barriers to sleep (e.g. environmental factors, exercise patterns, dietary patterns, napping, use of stimulants, ruminating about stressful events prior to sleep)

Quality

- What is your main sleep complaint? (e.g. too much sleep , trouble falling or staying asleep, non-restorative sleep, excessive sleepiness in day)

Region / Radiation – N/A

Severity / other Symptoms

- How bothered are you by this symptom on a scale of 0 – 10? (0 = not at all and 10 = worst imaginable)
- How often is sleep disturbed and what is the duration of these disturbances?
- Have you had any additional symptoms such as pain, fatigue, anxiety, worry, and/or depression?
- Have you been told that you snore frequently or stop breathing during sleep?

Treatment

- What sleeping strategies have you tried? Any medication? Has this been effective?
- Have you used any sleep strategies in the past that have been effective?

Understanding / Impact on You

- How has your sleep disturbance impacted on your normal daily activity?
- Do you have trouble staying awake while driving, eating meals, working or socializing?
- What activities are you still able to participate in?
- Do you live alone? If you live with others, how does this impact them? Have they noticed any unusual behaviors while you sleep (e.g. snoring, sleep walking, interrupted breathing, leg movements, or reported delirium?)

Value

- What is your comfort goal for this symptom (0 – 10 scale)?
- Are there any other views or feelings about this that are important to you or your family?
- What do you believe is causing your sleep-wake disturbances?

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INSOMNIA GRADING SCALE NCI CTCAE (Version 4.03)				
GRADE 1 (Mild)	**GRADE 2 (Moderate)**	**GRADE 3 (Severe)**	**GRADE 4 (Life - threatening)**	**Grade 5 (Death)**
Mild difficulty falling asleep, staying asleep or waking up early	Moderate difficulty falling asleep, staying asleep or waking up early	Severe difficulty in falling asleep, staying asleep or waking up early		

MANAGEMENT OF SLEEP- WAKE DISTURBANCE: Prevention, support, teaching, & follow-up as clinically indicated	
Patient Care and Assessment (should be done at regular intervals or upon clinical status changes)	• Collaborate with physician: − Rule out other causes or concomitant causes of insomnia and determine need for further assessment at cancer centre or with GP − If patient requires new or change in prescription (e.g. pain and sleep medications) • Assessment and management of contributing factors and comorbidities needs to be established.
Sleep Hygiene : ***Components of Cognitive Behavioral Intervention/Approach***	• ***PATIENT TEACHING*** • **Encourage:** − Regular exercise is likely to be effective − Going to bed when sleepy (do not confuse tired/fatigued or bored with being sleepy) − Using bed for sleep and intimacy only, not as an office or place to watch television. − Making other areas of your home quiet and comfortable for relaxing activities − Establishing a “clear-your head-time” in the early evening devoted to problem-solving, planning, or worrying. If the topic re-appears in your mind later, gently remind yourself you have devoted time already today − Establishing a “buffer zone” time before going to bed in which lights are dim and you engage in quiet, relaxing activities. (e.g. meditation, reading, warm bath, audiobooks, music, prayer, calming TV/movies) − Limiting naps to less than 1hr and not too close to bedtime. If able, nap somewhere other than the bed − Turning off electronics and light-emitting sources 1 hour before bedtime • **Avoid the following close to bedtime:** − Intake of stimulants (e.g. caffeine-within 6 hour, nicotine, alcohol) − Going to bed hungry − Heavy, spicy, or sugary foods − Fluids (e.g. more than 1 cup of fluid within 4 hour) − Stimulating activities (e.g. vigorous exercise within 2-4 hour) • **Bedtime:** − Dark and quiet sleep environment with a comfortable room temperature − Soothing activities before bedtime − Maintaining consistent bedtime − Removing bedroom clock − For patients in hospital, reduce disturbances (adjust timing of night time checks and administration of medications, consolidate patient care activities) − If not asleep within 20-30 minutes, get up and engage in a relaxing activity (e.g. reading) and return to bed when sleepy • **Morning:** − Ensure morning light exposure (natural or artificial) of at least 30 minutes within one hour of waking.

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Sleep Log	• Encourage patient and/or family to maintain a sleep log and record the following for 2 weeks (considered to be more reliable information than answering questions in retrospect) • Include: − Total sleep time per night and the time required to fall asleep − Number, duration and trigger of nighttime awakenings − Subjective reports of sleep quality and daytime impairment − Nap times (frequency, times, durations) − Timing and consumption of medications (including herbal supplements), caffeine and alcohol for each 24hr period
Relaxation Strategies	• Guided imagery, mindfulness, meditation • Breathing techniques (diaphragmatic breathing or focused breathing) • Aromatherapy • Progressive muscle relaxation • Massage • Yoga-gentle hatha and restorative postures, breathing and meditation exercises have been shown to show some benefit in cancer patients with insomnia • Mindfulness-based stress reduction is thought to likely have some benefit • Tai Chi has been shown to be beneficial in some cases of chronic insomnia
Pharmacological Management	• Ensure that possible contributing symptoms (e.g. pain) have been managed with appropriate non pharmacological and/or pharmacological strategies prior to the addition of sleep promotion medication. • Keep in mind the principle of using the lowest effective doses of the least harmful agent with awareness of potential adverse effects, drug-drug interactions, and safety issues. • **Medications prescribed should be related to type of sleep-wake disturbance.** For instance, consider a short-acting sleep medication for difficulties falling asleep and a longer-acting medication for difficulties staying asleep • Sleep medications are generally recommended only for short-term and intermittent use Prolonged use of medications for persistent insomnia can cause: − Altered physiologic function and impair natural sleep patterns − Tolerance, abuse, dependence and withdrawal − Tapering should be done slowly to avoid rebound insomnia and withdrawal **See Appendix B: Sleep-Wake Disturbances-Pharmacological Management, below**
Follow-up	• Instruct patient/family to contact healthcare providers if symptoms worsen or do not improve • If indicated, arrange for nurse initiated follow–up or physician follow–up

	RESOURCES & REFFERALS
Referrals	• Patient Support Clinic-nurses can assist in teaching principles of sleep hygiene, review sleep logs, and schedule symptom follow up calls or appointments • Patient and Family Counseling (Cognitive Behavioral Therapy and Relaxation Exercises) • Family doctor or Nurse Practitioner • Pharmacy • Alternative practitioners (e.g. relaxation therapy, massage) • Sleep specialist or sleep lab (especially if there appears to be signs of obstructive sleep apnea, associated restless legs syndrome and hypersomnia) • Consider volunteer driver for patients with severe sleep disturbance • Community programs
Patient and Staff Education Resources	• Sleeping Problems – http://www.bccancer.bc.ca/health-info/coping-with-cancer/managing-symptoms-side-effects/sleeping-problems • Resources about managing stress, anxiety, depression deep breathing, positive thinking, etc- In Patient Handout Section: http://www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support/managing-stress • Canadian sleep society • Library Pathfinder: Meditation and Mindfulness- Scroll down to Cancer Pathfinders http://www.bccancer.bc.ca/our-services/services/library • Counseling http://www.bccancer.bc.ca/our-services/services/patient-family-counselling • Support Programs http://www.bccancer.bc.ca/health-info/coping-with-cancer/emotional-support

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	• Complementary and Alternative Cancer Therapies- BC Cancer http://www.bccancer.bc.ca/health-info/coping-with-cancer/complementary-alternative-therapies • Complementary Therapies: A guide for people with cancer (Canadian Cancer Society) http://www.cancer.ca/en/cancer-information/diagnosis-and-treatment/complementary-therapies/?region=ab • Cancer Transitions: Sleep (Alberta Health Services) https://www.youtube.com/watch?v=9lGUClnju5o&t=1s
Bibliography List	• http://www.bccancer.bc.ca/health-professionals/professional-resources/nursing/symptom-management

Appendix A: Sleep-wake Disturbances- Contributing Factors

Contributing Factors	
Relevant Medical History (cancer, cancer related or pre-existing conditions)	• The cancer diagnosis itself: – Respiratory disturbances (dyspnea, sleep apnea) – Genitourinary disturbances (incontinence, retention, or irritation – Gastrointestinal disturbances (incontinence, diarrhea, constipation or nausea) – Cytokine production is associated with cancer development and growth. Changes in cytokines are linked to clinical depression and mood changes associated with sleep-wake disturbances – Bone and liver metastases or ascites in advanced illness Chemotherapy (especially antimetabolites e.g. Methotrexate and 5FU) and Biotherapy (e.g. interferon), and/or Radiation Therapy – Surgery • Bone marrow transplant • Pain: acute/chronic • Fatigue: moderate/severe • Family history of sleep problems • Hormone level changes: – Antiestrogens and Antiandrogens- may cause night sweats and hot flashes – Cortisol - shortened irregular sleep periods, daytime sleepiness – Melatonin production - changes in body temperature and sleep regulation
Psychological	• Depression, anxiety, mood disorder, post-traumatic stress syndrome • Stressful life events • Maladaptive cognitions (e.g. unrealistic sleep expectations, false perceptions of sleep time and quality)
Medications	• Oral and inhaled glucocorticoids (e.g. dexamethasone)- linked to insomnia • Antiemetics (e.g. Granisteron)-may cause drowsiness, decreased REM sleep, restless leg syndrome • Analgesics (e.g. opioids)-may cause decreased REM sleep and potentially respiratory depression • Hormones: Antiestrogens (e.g. Tamoxifen) and Antiandrogens (e.g. Leuprolide), oral contraceptives • Anti-convulsants • Beta-blockers • Antidepressants: SSRIs (selective serotonin reuptake inhibitors) and NSRIs (norepinephrine reuptake inhibitors) 20% incidence of insomnia • Stimulants: (e.g. methylphenidate, modafinil) • Insomnia related to withdrawal of medications: – Hypnotics and sedatives-may cause nervousness, jitteriness and REM rebound – CNS depressants (e.g. opioids, alcohol, anti –histamine sedatives) – Anti-depressants (e.g. Tricyclic and Monoamine Oxidase Inhibitors) – Marijuana – Illicit drugs (e.g. cocaine)

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Other	• Female, shift workers, advanced age
	• Maladaptive behaviors (e.g. spending too much time in bed, frequent changes to sleep-wake patterns, daytime napping, decreased daytime activity)
	• Substances that act as stimulants:
	  ▪ Caffeine - blocks adenosine (a sleep enhancing factor)
	  ▪ Smoking - nicotine is a CNS stimulant
	  ▪ Alcohol consumption - produces sympathetic arousal
	  ▪ Red ginseng – increases effects of stimulants
	• Sleep environment (e.g. room temperature, excess noise and light exposure)
	• Hospitalized patients (e.g. frequent sleep interruptions)

Consequences	
• Emotional consequences- irritability, situational stress, and a higher risk of developing clinical anxiety and/or depression. • Physical effects- fatigue, cardiovascular disease, diabetes, obesity, exacerbations of pain, poor adherence to treatments, decrease immune functioning, and higher morbidity and mortality. • Cognitive Impairment- may impact concentration, memory, and judgement. Sleep-wake cycle reversals may lead to delirium. (more common in certain cancers such as lung cancer) • Compromised functional status with lower quality of life • Occupational challenges resulting in poor work performance	

Appendix B: Sleep-wake Disturbance- Pharmacological Management

Insomnia - Medications that Promote Sleep	
Benzodiazepines • Clonazepam, Lorazepam, temazepam, triazolam	• Variable metabolic half-lives, those with longer half–lives (e.g. clonazepam) may cause residual daytime sedation and cognitive/motor impairments • Risk for tolerance, dependence and withdrawal • Discontinuation may cause rebound insomnia • Recommended only for short–term or intermittent use • NOTE: do not use long-acting benzodiazepines (e.g. diazepam) due to residual sedation, especially in the elderly
Nonbenzodiazepine Hypnotics • Zaleplon, Zolpidem, Zopiclone, eszopiclone	• Short metabolic half–lives; therefore less residual daytime sedation • Useful for problems falling asleep with some long-acting preparations available • Not associated with tolerance, dependence, sleep cycle alterations or rebound insomnia
Tricyclic Antidepressants • Amitriptyline, Nortriptyline	• Sedative effects and high anticholinergic effects (should be avoided in elderly) • May boost appetite and help with neuropathic pain • May be associated with weight gain
Other	
Herbal supplements (effectiveness not well established overall) • Melatonin	• Melatonin: Could be useful in situations in which the endogenous production of melatonin has been diminished, HOWEVER, melatonin may interact with chemotherapeutic regimens through a number of systems either inhibiting or augmenting its efficacy and/or toxicity. **Supplements are advised to be discussed with patient's pharmacist and oncologist. **
Antihistamines • Hydroxyzine, Diphenhydramine	• Useful for problems falling asleep only. Anticholinergic side effects; increases delirium risk in elderly patients, and increases incidence of restless legs
Serotonin Modulator Antidepressant trazadone	• Risk of orthostatic hypotension and falls
Antipsychotics (Last Option) **Atypical** • Quetiapine	• Risk of weight gain, prolonged QT, abnormal/involuntary movements, and metabolic syndrome (not preferred agent due to side effects)
Typical • **Chlorpromazine**	• Sedative effects

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