The Importance of Sleep in Cancer Care

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What This Talk Is About

- Normal sleep patterns and common sleep disorders in cancer
- Underlying causes of sleep disorders in cancer
- What can be done to improve sleep in people affected by cancer
Why is Sleep Important?

- Sleep is essential for strong physical and mental health.

- Sleep helps our hormones control growth, repair, immune system function, and blood sugar levels.

- It also improves our memory, as well as our learning and problem-solving capacities.
Disrupted Sleep Affects Our Health

- Lack of good night sleep has been associated with obesity, diabetes, stroke, heart disease, and cancer.

- Poor sleep is associated with inflammation and decreased immune function, both of which are important in cancer development.

- People with sleep apnea have increased risk of developing any kind of cancer. There is a relationship between lack of sleep and breast, prostate, and colorectal cancers.
What is Normal Sleep?

- Two main phases of sleep: REM - rapid eye movement and NREM - non-rapid eye movement.

- REM sleep: active sleep, dreaming. NREM sleep: quiet sleep, goes from light to deep sleep.

- Non-REM and REM sleep alternate during the night, with each cycle lasting about 90 minutes. We will have them repeated 4 to 6 times during 7-8 hours of sleep.
Common Sleep Disturbances

- Five major types of sleep disorders:
  1. Insomnia: inability to fall and stay asleep
  2. Sleep Apnea: breathing stops for 10+ seconds during sleep
  3. Hypersomnia: inability to stay awake during the day
  4. Circadian Rhythm Disorders: “internal clock” problem when people feel the need to sleep or be awake
  5. Parasomnia: walking, talking, eating, while falling asleep, during sleep, or waking up.
One third to one half of cancer patients experience sleep disturbances.

Insomnia is the most common type of sleep disorder in cancer, twice as common as general population, and affects up to 80% of patients.

People with cancer also have abnormal sleep-wake cycle, and sleep apnea is more common in patients with cancer than in general population.
Underlying Causes

- Stress and lifestyle
- Symptoms related to cancer
- Side effects from treatments
- Underlying health conditions
- Medications
Treatments Overview

- Cognitive-Behavioral Therapy
  - Sleep Hygiene
  - Stimulus Control
  - Relaxation techniques/cognitive therapy
- Stress reduction techniques/therapies
- Light therapy
- Medications
- Supplementation
Underlying Causes: Stress and Lifestyle

- Emotional stress plays a major role in cancer-related insomnia

- Hormonally, some stress response is managed by HPA axis that is responsible for cortisol (stress hormone) regulation. HPA axis dysfunctions are common in patients with cancer.

- This is important information because we can measure and influence cortisol production in our bodies
HPA Axis

Hypothalamus

- Corticotropin-releasing hormone

Anterior pituitary

- Corticotropin (adrenocorticotropic hormone)

Adrenal cortex

Cortisol

Metabolic effects

Julie L. Ryan et al. The Oncologist 2007;12:22-34
Underlying Causes: Stress and Lifestyle

- **Alcohol:** can help fall asleep, but reduces REM sleep, which is considered to be mentally restorative sleep. Also a diuretic - can cause waking up at night for a bathroom trip.

- **Exercise:** helpful for sleep, but for some people needs to be done earlier during the day

- **Sleep hygiene:** plays a very big role
Sleep Hygiene and Stimulus Control

- Go to bed when sleepy and get up if can’t sleep after 20 minutes
- Make sure your bedroom is dark (affects melatonin), quiet, and cool
- Don’t take naps during the day
- Go to bed and wake up at the same time
- Bedroom is for sleeping and sex
- No TV or any electronics before bedtime (blue light affects melatonin production and the information affects your stress hormones)
- Avoid caffeine, alcohol, spicy heavy meals, and nicotine in the second part of the day. Add higher protein snacks 2 hours prior to bed.
- Sleep rituals: bath, essential oils, music
- Exercise earlier during the day
Relaxation techniques and stress reduction

- Stress reduction: What non-essential stuff you can let go of in your life for now? Clear your plate
- Counseling/cognitive therapies: support system, “debriefing”
- Relaxation techniques
  - Deep breathing
  - Meditation/Guided visualization
  - Acupuncture, massage
  - Yoga, Tai Chi, Qi Gong
- Use gadgets to your advantage
Light and Stimulant Therapy

- Used for circadian rhythm disorders (sleep-wake cycle disorders)

- Light therapy can also be used for SAD (Seasonal Affective Disorder)

- Light therapy - best done in the morning, 1-2 hours

- Contraindications: certain eye disorders, sensitive skin conditions
Sleep Restriction

- Fixed time to go to bed and wake up
- Adjust sleep time based on how long awake at night
- Will be more sleepy initially but helpful long-term
Assessment

- Interview
- Exam and diagnostic studies/labs
- Questionnaires/journals
- Polysomnogram
Address Underlying Causes: Cancer Symptoms, Side Effects of Treatments, Other Health Issues

Some common concerns:
- Anxiety
- Digestive health
- Pain
- Breathing
- Hot flashes
- Restless leg
Sleep Apnea

- Almost one third of patients with cancer-related fatigue are diagnosed with sleep apnea. Very common in patients with head and neck cancers, can be a result of surgery or radiation.

- Weight gain, common with some cancer treatments, contributes to sleep apnea. Narcotics and sleep medications can contribute.

- Needs to be evaluated by a sleep study. Treatment is CPAP - continuous positive airway pressure machine. Acupuncture studies have shown benefit.
Restless Leg Syndrome

- Vitamins and minerals: iron, magnesium, B vitamins, Vit C, Vitamin D
- Massage and stretching
- Stress reduction
- Decrease caffeine, alcohol, tobacco
- Rule out other disorders
Address Underlying Causes: Medications

- **Medications**
  
  - **Current Use:** e.g. steroids, OTC (decongestants), anti-depressants
  
  - **Withdrawal:** e.g. benzodiazepines, seizure Rx.
Melatonin

- Produced by our own pineal gland. Peaks in the middle of the night, low during the day. Light suppresses production of melatonin, including light from electronic devices. Blue light blocking goggles can be used.

- Melatonin also decreases estrogen production and is important in hormone-related cancers, such as breast cancer.

- Usually for sleep purposes (chronotrope), need 0.3-3 mg of melatonin before bed time. Some people benefit from timed-release melatonin.
Use of Herbs and Nutraceutical Supplements (amino-acids, vitamins)

- Use is based upon underlying diagnosis and ongoing issues

- Address current symptoms and side effects (pain, hot flashes, anxiety)

- Support HPA (cortisol) axis - ashwaganda, eleutherooccus, honokiol

- Promote better sleep and relaxation - valerian, hops, L-theanine, chamomile
Valerian Root

- Sedative, hypnotic, and anxiolytic
- Reduces the amount of time it takes to fall asleep
- Improves quality of sleep
- Can be taken as standardized extract in the capsules or tablets or as a liquid extract.
Honokiol

- Extract from Magnolia Bark

- Treatment of anxiety, cardiovascular system, and digestion

- Useful in cancer

- Participates in many pathways that stop cancer from growing.
Ashwaganda

- Comes from Ayurvedic (Indian) tradition, component in Amla paste

- Useful for modulation of stress response (helpful for cortisol management)

- Calming herb, useful for treatments in anxiety and insomnia

- Anti-inflammatory, anti-oxidant, and tonifying to the body
Vitamin D

- Higher intake is associated with better sleep, low vitamin D associated with higher sleepiness during the day.

- Source - supplementation and sunlight (not in Seattle from November -> April)

- Low levels are associated with many cancers.

- Other benefits: Decreases autoimmune reactions, anti-inflammatory, decreases cytokines, anti-depressant, important in digestive and endocrine health
Hops (Humulus lupulus)

- Component of beer
- Increases GABA, decreases CNS activity
- Flowers are used
Botanical medicine: Chamomile

- Good for insomnia and relaxation
- Other uses: anti-inflammatory, digestive help
- Flowers are used
- Tea is a good way to take Chamomile

Botanical Medicine: Passionflower

- Relaxation and sleep
- Used as tea or tincture or encapsulated herbal supplementation
- May interact with certain prescription medications.
- Can be used in teas or as extract

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L-theanine

- Amino acid that has relaxation effects
- Helpful for anxiety and sleep
- 100-400 mg dosages, good to use in combination with other agents, such as hops, melatonin, and 5-HTP.
5-HTP

- Neurotransmitter that turns into serotonin in the brain
- Helps to fall asleep and reduces amount of night-time awakenings
- Encapsulated products are available
- Interaction with anti-depressant medications*
Acupuncture
Acupuncture and Sleep

- Promotes quality of sleep, helps decrease feeling of anxiety and depression. Promotes sense of balance and relaxation.
  In addition
- Helps reduce side effects of chemo, radiation, surgical recovery, medications.
- Improves quality of life, helps with pain management.
- Can help with nausea/vomiting, appetite, constipation and diarrhea.
- Improves circulation, decreases hot flashes and menopausal symptoms.
- Supports immune function, helps increase energy levels.
Thank You and Be Well!