Interprofessional Geriatrics Training Program

Sleep Quality of the Older Adult

Acknowledgements

Author: Katya Cruz Madrid, MD, FACP

Editors: Valerie Gruss, PhD, APN, CNP-BC

Memoona Hasnain, MD, MHPE, PhD

Expert Interviewees: Katya Cruz Madrid, MD, FACP

Susan Corbridge, PhD, ACNP, FAANP

Introduction

Learning Objectives

Upon completion of this module, learners will be able to:

1. Describe and differentiate the stages of sleep in older adults
2. Explain the epidemiology of sleep disorders in older adults
3. Discuss the age-related changes in sleep
4. Identify common causes of sleep problems in older adults
5. Discuss appropriate treatment of sleep disorders in older adults

Sleep Cycles and Disorders

Sleep Cycles and Patterns

Sleep Cycles

1. Non-Rapid Eye Movement Sleep (NREM) has three stages:
   - N1: Light stage of sleep, the transition period between wakefulness and sleep
   - N2: Stage where the majority of sleep time is spent
   - N3: Deep and restorative sleep occurs
2. Rapid Eye Movement Sleep (REM) is normally characterized by:
   - Electroencephalogram activation (EEG)
   - Muscle atonia
   - Rapid eye movements

Sleep Cycles and Patterns

Sleep Patterns

- A normal night of sleep begins with NREM sleep; the first REM period occurs after 90 minutes or longer
- NREM and REM then alternate throughout the night, with longer REM sleep periods as the night progresses

Types of Sleep Disorders

- Sleep-Disordered Breathing or Sleep Apnea
  - Repeated episodes of either a cessation or marked decrease of airflow during sleep
- Sleep-Related Movement Disorders
  - Periodic Limb Movement Disorder occurs only during sleep resulting in daytime sleepiness, mood change and cognitive impairment [definition not narrated]
  - Restless Leg Syndrome includes leg movements while awake and asleep [definition not narrated]

(Abdulla et al., 2013)

Types of Sleep Disorders

- Circadian Rhythm Sleep Disorders
  - Due to desynchronization between patient's endogenous circadian clock and the external environment
- REM Sleep Behavior Disorder
  - Vigorous sleep behaviors associated with vivid dreams and the lack of the normal muscle atonia

(Abdulla et al., 2013)

Epidemiology of Older Adult Sleep Problems

Difficulty Falling Asleep	40%
Nighttime Awakening	30%
Early Morning Awakening	15%
Daytime Sleepiness	15%

(Durso & Sullivan, 2013)

Sleep Disorders in Hospitals and Nursing Homes

Causes of Hospital Sleep Disturbances

- Illness
- Medications
- Change from usual nighttime routine
- Living in sleep-disruptive environment

Causes of Nursing Home Sleep Disorders

- Multiple physical illnesses
- Use of psychoactive drugs
- Debility and inactivity
- Environmental factors such as nighttime noise, light, and disruptive nursing care
- Lack of exposure to bright light during the day

Assessment Question 1

Match the sleep stage to the statement that best describes it:

Stage	Description
N1	NREM stage, the stage where deep and restorative sleep occurs
N2	Characterized by electroencephalogram activation, muscle atonia, and rapid eye movements
N3	NREM stage, a light stage of sleep, the transition between wakefulness and sleep
REM Sleep	NREM stage, the stage where the majority of sleep time is spent

Assessment Question 1: Answer

Correct Answers

Stage	Description
N3	NREM stage, the stage where deep and restorative sleep occurs
REM Sleep	Characterized by electroencephalogram activation, muscle atonia, and rapid eye movements
N1	NREM stage, a light stage of sleep, the transition between wakefulness and sleep
N2	NREM stage, the stage where the majority of sleep time is spent

Sleep Changes of the Older Adult

Age-Related Sleep Changes

Sleep Changes When Entering Older Adulthood

- The total sleep time needed decreases
- The time it takes to fall asleep, or sleep latency, is stable or increases
- Decreased sleep efficiency
  - Time of sleep divided by time spent in bed
- Typically going to bed earlier and experience earlier morning awakening
- May nap more during the daytime and have more arousal during the night

Age-Related Sleep Changes

Sleep Changes When Entering Older Adulthood (Continued)

- Experience decreases in the deeper stages of sleep, where the most restorative sleep occurs
- Age-related neuronal loss in the suprachiasmatic nucleus of the hypothalamus
- In some cases, reduced melatonin production by the pineal gland weakens circadian (24 hour) rhythms

Dementia Sleep Changes of the Older Adult

- More sleep disruption and arousals
- Lower sleep efficiency
- Higher percentage of stage 1 sleep, with a decrease in stage 3 (the most restorative stage of sleep)
- Disturbances of the sleep-wake cycle are common with dementia
  - Increased daytime sleep
  - Increased nighttime wakefulness

Assessment Question 2

Mr. Grayton's wife reports that over the past 3 months, he is more easily aroused at night, and his total sleep time has decreased. Specifically, he goes to bed around 11 PM and wakes at 5 AM. She also reports it takes him longer to fall asleep and he is napping more frequently i.e., 2 hours/day. Which of the following are common age-related sleep changes?

a) Increase in daytime napping
b) More easily aroused
c) Decrease in total sleep time
d) Takes longer to fall asleep
e) All of the above

Assessment Question 2: Answer

Mr. Grayton's wife reports that over the past 3 months, he is more easily aroused at night, and his total sleep time has decreased. Specifically, he goes to bed around 11 PM and wakes at 5 AM. She also reports it takes him longer to fall asleep and he is napping more frequently, i.e., 2 hours/day. Which of the following are common age-related sleep changes?

a) Increase in daytime napping
b) More easily aroused
c) Decrease in total sleep time
d) Takes longer to fall asleep
e) All of the above (Correct Answer)

Interview with Expert: Katya Cruz Madrid, MD, FACP
Risk Factors

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Risk Factors
Expert Interview: Katya Cruz Madrid, MD, FACP

Listen to Our Expert Discuss:

- Risk factors for older adult sleep disorders
- Medical conditions:
  - Chronic pain
    - Caused by osteoarthritis, other rheumatologic disorders, or neuropathy

      [not narrated] (Gibson et al., 1994; Jakobsson et al., 2003)
  - Dyspnea of cardiac or pulmonary origin
    - Shortness of breath or difficulty breathing
  - Obesity (Leveille et al., 2009)

Risk Factors
Expert Interview: Katya Cruz Madrid, MD, FACP

Listen to Our Expert Discuss:

- Risk factors for older adult sleep disorders (continued)
- Medical conditions (continued)
  - Neurodegenerative diseases such as Alzheimer's disease and Parkinson's disease
  - Nocturia and/or incontinence (Podichetty et al., 2003)
  - Gastroesophageal reflux [not narrated] (Reyes-Gibby et al., 2002)

Risk Factors: Psychiatric Disorders
Expert Interview: Katya Cruz Madrid, MD, FACP

Listen to Our Expert Discuss:

- Risk factors for older adult sleep disorders (continued)
- Psychiatric disorders:
  - Depression and mood disorders
  - Anxiety disorders
  - Alcohol and/or drug dependence or abuse

(Tracy & Sean Morrison , 2013)

Risk Factors: Psychosocial, Psychological, and Lifestyle Expert Interview: Katya Cruz Madrid, MD, FACP

Listen to Our Expert Discuss:

- Risk factors for older adult sleep disorders (continued)
- Psychosocial, psychological, and lifestyle factors:
  - Retirement
  - Bereavement
  - Poor sleep hygiene
  - Inaccurate, maladaptive beliefs about sleep changes with advancing age
    - Understand that everyone has a different "normal" sleep pattern
  - Daytime sleeping, extended napping makes it difficult to sleep at night
  - Lack of exercise can lead to trouble sleeping at night

(Tracy & Sean Morrison , 2013)

Pharmacologic Risk Factors
Expert Interview: Katya Cruz Madrid, MD, FACP

Pharmacologic	Non-Pharmacologic
• Benzodiazepines	• Alcohol
• Antihistamines	• Nicotine
• Anticonvulsants	• Caffeine
• CNS stimulants	
• Anti-Parkinson medications	
• Diuretics	
• Tricyclics and other antidepressants [not narrated]	
• Analgesics [not narrated]	
• Adrenergic receptors [not narrated]	

Pharmacologic Risk Factors
Expert Interview: Katya Cruz Madrid, MD, FACP

- Benzodiazepines
- Antihistamines
- Anticonvulsants
- CNS stimulants
- Antiparkinson medications
- Diuretics

<u>Not Mentioned in the Film</u>

- Tricyclics and other antidepressants
- Analgesics
- Adrenergic receptors

Non-Pharmacologic Risk Factors
Expert Interview: Katya Cruz Madrid, MD, FACP

- Alcohol
- Nicotine
- Caffeine

Assessment Question 3

Mr. Grayton is a 93-year-old gentleman and WWII veteran who has chronic knee pain, BPH with nocturnal incontinence, arrhythmia (A-Fib), dentition loss, and hearing loss. He presents with new onset disruptive sleep pattern. Which of the following may be contributing to his sleep disturbance?

a) Chronic knee pain

b) BPH with nocturnal incontinence

c) Dentition loss

d) Hearing loss

Assessment Question 3: Answer

Mr. Grayton is a 93-year-old gentleman and WWII veteran who has chronic knee pain, BPH with nocturnal incontinence, arrhythmia (A-Fib), dentition loss, and hearing loss. He presents with new onset disruptive sleep pattern. Which of the following may be contributing to his sleep disturbance?

a) Chronic knee pain (Correct Answer)

b) BPH with nocturnal incontinence (Correct Answer)

c) Dentition loss

d) Hearing loss

Interview with Expert: Susan Corbridge, PhD, ACNP, FAANP Assessment

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- A problem in sleep apnea assessment
  - Under-recognized because:
    - Patients do not come in with symptoms that are related to sleep apnea
    - Typically will see primary care provider for high blood pressure, asthma, chronic obstructive pulmonary disease (COPD), and/or other health issues
    - But will not specifically come in reporting these types of symptoms:

      "I am tired during the day"; "I fall asleep more"; "I snore"

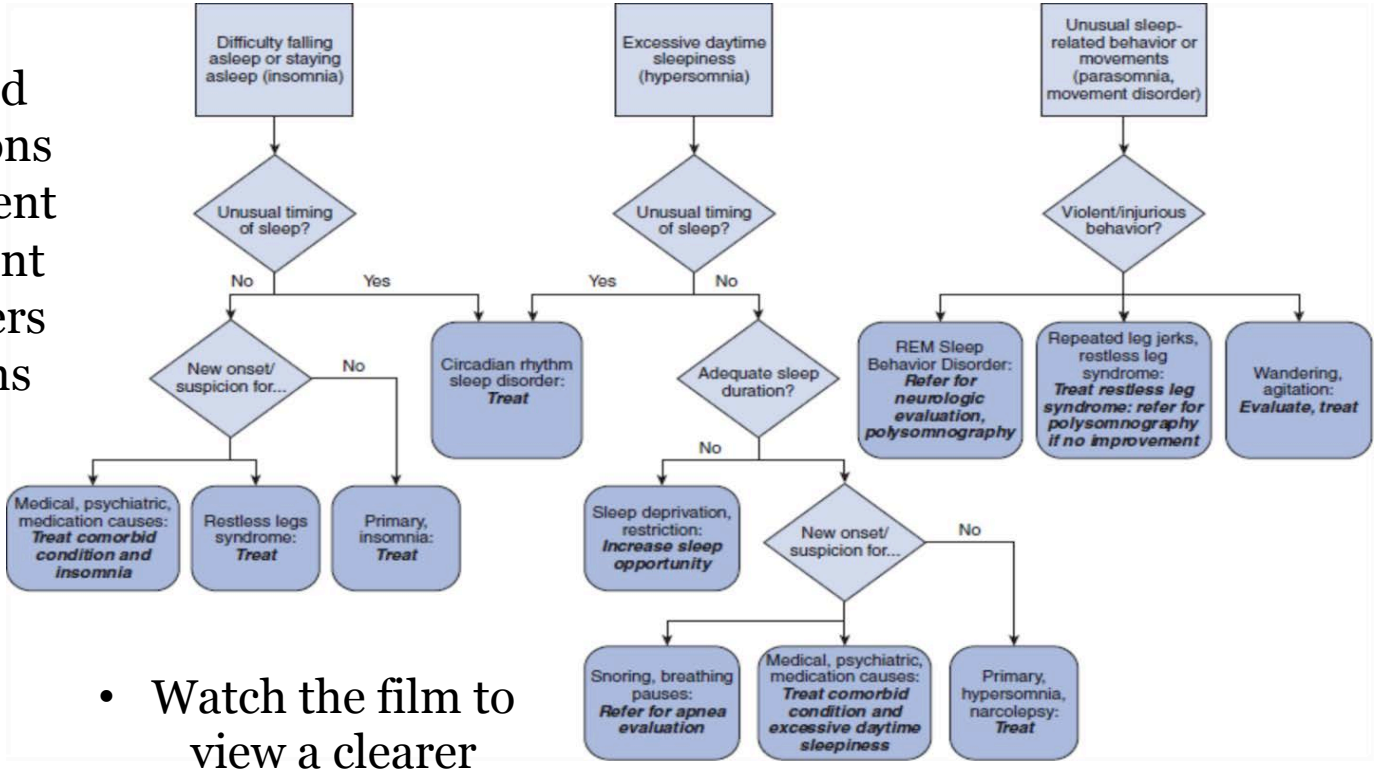
Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Need for health care provider to be aware of sleep apnea
  - Important for the health care provider to have this on their radar when taking care of them for other issues

Assessment and Management of Sleep Disorders in Older Adults

- Evidence-based recommendations for the assessment and management of sleep disorders in older persons



- Watch the film to view a clearer image

(Reproduced with permission from Bloom et al., 2009)

Assessment

Not in the Film

Difficulty Falling Asleep or Staying Asleep (Insomnia)

- Ask: Are you satisfied with your sleep?

Excessive Daytime Sleepiness (Hypersomnia)

- Ask: Does sleep or feeling tired interfere with daytime activities?

Unusual Sleep-Related Behavior or Movements

- Ask: Does the bed partner or others complain of unusual behavior during sleep, such as snoring, leg movements, interrupted breathing?

(Bloom et al., 2009)

Assessment of Sleep Quality of the Older Adult

- Use a sleep log and symptom checklist in addition to the following screening tools:

Screening Tools Not validated in older adults	**Link**
The Insomnia Severity Index and Pittsburgh Sleep Quality Index: Information from Partner or Caregiver – useful when patient is poor historian	https://consultgeri.org/try-this/general-assessment/issue-6.1
Epworth Sleepiness Scale, Copyrighted	http://epworthsleepinessscale.com/

Assessment of Sleep Quality of the Older Adult

Screening Tools Not validated with older adults	**Link**
Stanford Sleepiness Scale (SSS)	http://www.thoracic.org/members/assemblies/assemblies/srn/questionaires/sss.php
Fatigue Severity Scale	https://www.saintalphonsus.org/documents/boise/sleep-Fatigue-Severity-Scale.pdf

Assessment of Sleep of the Older Adult

When Speaking With the Patient

- Focused history and physical exam
  - Guided by evidence from their personal history to guide diagnosis or further questioning
  - Assess mental status (for example, recent stressors, symptoms of depression, anxiety, or other psychiatric disorders)
- Laboratory testing and/or recommend a sleep study

Sleep Study Recommendations

American Academy of Sleep Medicine (AASM) Recommends

- For obstructive sleep apnea (OSA):
  - Polysomnogram (in-lab or home testing)
  - Physical assessments: EEG, ECG or heart rate, electrooculogram (COG), chin electromyogram (EMG), airflow, and oxygen saturation
- For periodic limb movements
  - Add anterior tibialis EMG
    - http://www.aasmnet.org/

Interview with Expert: Susan Corbridge, PhD, ACNP, FAANP
Sleep Apnea

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Sleep apnea:
  - Increased sleep apnea due to significant obesity rate in the U.S.
  - Under-recognized
  - Need for health care providers to understand what sleep apnea is
  - Patient education is key

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Sleep apnea:
  - Describing sleep apnea
    - Adults have a collapsible back of the throat
    - When patients with sleep apnea lie down, especially if they have a lot of tissue in the neck, the airway can completely close off at night, or close partially, and patients do not receive enough oxygen to their brain and they wake up and the cycle repeats itself

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Sleep apnea:
  - Patients with sleep apnea are at risk for
    - Many health issues
    - Poor cognitive functioning
    - Hypertension
    - Cardiac issues
    - Diabetes
    - Poor quality of life

Physical Exam: Sleep-Disordered Breathing or Sleep Apnea

Sleep-Disordered Breathing or Sleep Apnea

- Characterized by repeated episodes of either a cessation or marked decrease of airflow during sleep
  - Two kinds:
    - Central sleep apnea
    - Obstructive sleep apnea (OSA)
- In this module, only obstructive sleep apnea (OSA) is reviewed

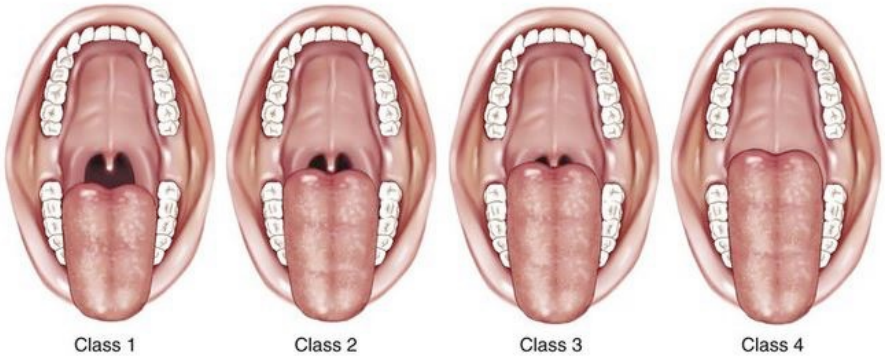
Physical Exam: Obstructive Sleep Apnea (OSA)

- Check for:
  - Elevated body mass index (BMI)
  - Hypertension
  - Retrognathia
  - Obesity
  - Thick neck
  - Macroglossia or large tongue
  - Acromegaly
  - Thyroid enlargement
  - Large tonsils
  - Enlarged uvula
  - Enlarged nasal turbinates or polyps
  - Narrow or high-arched palate

Physical Exam Obstructive Sleep Apnea

- Examine oropharynx using “Mallampati Score”
  1. Entire tonsil visible
  2. Upper half of tonsil fossa visible
  3. Soft palate and hard palate visible
  4. Only hard palate visible

  A score of 3 or 4 may be suggestive of OSA



(Adapted from Mallampati et al., 1985)

Interview with Expert: Susan Corbridge, PhD, ACNP, FAANP
Risk Factors for Sleep Apnea

UIC | ENGAGE - IL
Enhancement of Geriatric Care for All

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Risk factors for sleep apnea:
  - Age greater than 50
  - Males are more likely to have sleep apnea than females
  - Women who are post-menopausal
  - Thick neck
    - Neck shirt size of 16 in women
    - Neck shirt size of 17 in men

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Risk factors for sleep apnea (continued):
  - History of hypertension
  - Nasal stuffiness and nasal problems
  - When health care provider examines a patient, if they have a crowded posterior oropharynx

Assessment Question 4

Mr. Grayton described his sleeping problems to his health care provider. Which of the following would be an appropriate initial step to assess his sleep problem?

a) Conduct a history to determine if sleep or feeling tired interferes with daytime activities
b) Conduct a sleep study
c) Cardiac workup
d) Test for obstructive sleep apnea

Assessment Question 4

Mr. Grayton described his sleeping problems to his health care provider. Which of the following would be an appropriate initial step to assess his sleep problem?

a) Conduct a history to determine if sleep or feeling tired interferes with daytime activities (Correct Answer)

b) Conduct a sleep study

c) Cardiac workup

d) Test for obstructive sleep apnea

Management

Helping Older Adult Patients Manage Sleep Disorder

Begin With a Trial of Improved Sleep Hygiene

- Lifestyle changes
  - Regular morning rising time
  - Follow a nighttime routine and wear comfortable bedclothes
  - Minimize noise and light and keep room temperature comfortable
  - Driving precautions (avoid driving if fatigued or sleepy)
- Avoid
  - Daytime napping
  - Exercise before bedtime
  - Caffeine, nicotine, and alcohol in the evening
  - Excessive fluid intake at night to reduce nighttime urination
  - Large meals before bedtime, a light snack may promote sleep

Non-Pharmacologic Approach

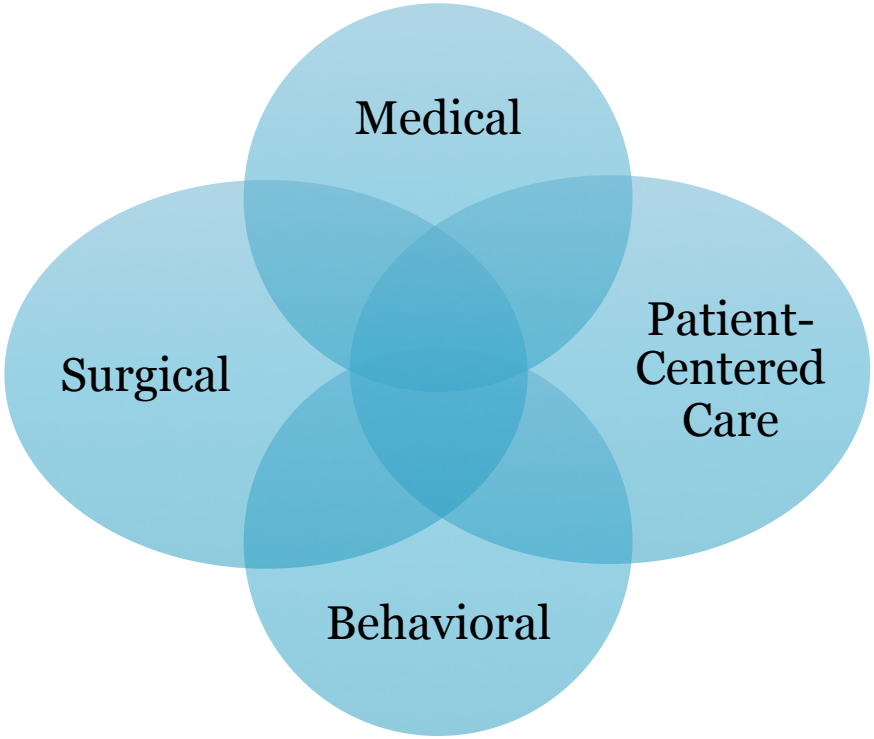
- Stimulus control
- Sleep restriction
- Cognitive interventions
  - Cognitive behavioral therapy is a first line approach for chronic insomnia, but it may be a challenge to access adequately trained clinicians [not in narration]
- Relaxation techniques
- Bright lights
- Utilize an interprofessional team approach

(American Geriatrics Society, 2009; Hadjistavropoulos et al., 2007; Herr et al., 2011; Wells et al., 2008)

Therapies for Obstructive Sleep Apnea (OSA)

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

- Treatment should involve a multidisciplinary approach



Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Positive Airway Pressure (PAP)

- Treatment of choice for OSA of all severities
- Alternative therapies may be indicated based on the patient's anatomy and severity of OSA

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Treating sleep apnea:
  - The gold standard is continuous positive airway pressure (PAP) for treatment of sleep apnea
  - We also recommend weight loss
    - Because weight loss is incremental, patients need to have continuous positive airway pressure (PAP)

Therapies for Sleep Apnea (OSA) in the Older Adult

Positive Airway Pressure (PAP)

- Acts as support to maintain patency of the upper airway and reduce the Apnea–Hypopnea Index (AHI)
- The level of PAP is determined by an in-lab, attended, overnight polysomnographs (PSG) and sometimes by a split-night diagnostic and titration study
- A split-night study may occur if a patient has AHI ≥ 40 during 2 hours of a diagnostic study; in this case, PAP may be applied and titrated in the same night

Therapies for Sleep Apnea (OSA) in the Older Adult

Positive Airway Pressure (PAP) (Continued)

- Different modes of PAP delivery include continuous (CPAP), bi-level (BiPAP), and automatic titrating (APAP)
  - PAP can be applied using a full face mask, oral mask, nasal mask, or nasal pillows
    - Referral to Respiratory Therapy to fit PAP device [not in narration]
  - Heated humidification can assist in patient comfort

Therapies for Sleep Apnea (OSA) in the Older Adult

Positive Airway Pressure (PAP) (Continued)

- Adverse effects include:
  - Nasal congestion and dryness
  - Nosebleeds
  - Claustrophobia
  - Inconvenience
  - Air swallowing
  - Skin rash
  - Minor trauma from the mask
- Close follow-up with the health care team is imperative, especially within the first few weeks after initiation

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Talk with sleep apnea patients about their partner:
  - Patients feel it [the PAP] is “cumbersome;” “it’s loud”
  - Ask, “How old is your machine?”
    - Some of the newer machines are not quite as noisy
  - Important to get the partner to buy into it [PAP] as well

Interview: Susan Corbridge, PhD, ACNP, FAANP

Listen to Our Expert Discuss:

- Talk with sleep apnea patients about their partner (continued):
  - Patients concerned that it is a disservice to their partner
  - Educate patient and partner that using PAP is doing a service to the patient and relationship because the patient is going to be healthier, feel better, and improve quality of sleep at night for both
  - In addition to the physiologic improvements in the patient's body

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Oral Appliances

- Work by enlarging the upper airway and preventing upper airway collapse
- Examples include:
  - Mandibular repositioning appliances (MRA)
  - Tongue-retaining devices (TRD)
- They are not as effective as PAP, but are indicated for people with mild to moderate OSA who have contraindications to the use of PAP, cannot tolerate PAP, or in whom PAP and behavioral therapy is ineffective

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Oral Appliances (Continued)

- Patients should have a thorough dental examination prior to consideration of use
- A repeat sleep study should be performed with the oral appliance in place to assess the treatment outcome
- Regular follow-up with a dental specialist trained in sleep medicine should occur

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Surgical Therapy

- May be considered as primary therapy if the OSA is mild and there is an anatomical cause of major airway obstruction that can be reversed
- Surgery can be considered as secondary therapy after a trial of PAP or an oral appliance if treatment response is inadequate or if the patient does not tolerate them
- Surgery may also be used as an adjunct to other therapies

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Surgical Therapy (Continued)

- Bariatric surgery may be a helpful adjunct to other OSA treatments in patients who have failed to lose weight through lifestyle modifications
- Tracheostomy is curative and can be considered in extremely advanced treatment-refractory cases
- There is no pharmacologic therapy for OSA aside from treating underlying diseases such as acromegaly or hypothyroidism

Therapies for Obstructive Sleep Apnea (OSA) in the Older Adult

Remember

- All patients with OSA need individualized care and regular follow-up to assess symptoms, treatment response, side effects, and medical conditions associated with OSA

Insomnia Management

Treating Insomnia of the Older Adult

- All adult patients should receive cognitive behavioral therapy as the initial treatment for chronic insomnia
- When cognitive behavioral therapy for insomnia is unsuccessful, clinicians should use a shared decision-making approach, including a discussion of the benefits, harms, and costs of short-term use of medications, to decide whether to add pharmacological therapy
- Do not start an older adult with persistent sleep complaints on a sedative hypnotic agent without careful clinical assessment to identify the cause

Pharmacologic Approach

Sleep Medication

Sleep Initiation: Consider Short-Acting Agents

- Short-acting agents are recommended for problems with initiating sleep: benzodiazepines and non-benzodiazepines
- Produce pronounced rebound and withdrawal syndromes after discontinuation
- Rebound insomnia is dose-dependent and can be reduced by tapering the dosage prior to discontinuing the drug
- Still have association with falls and hip fractures

Sleep Medication

Sleep Maintenance: Intermediate-Acting Agents

- Not in the Film
  - Temazepam is an intermediate-acting benzodiazepine
  - A caution with the use of this agent would include psychomotor impairment, increased risk of falls and daytime carryover effect

(American Geriatric Society, 2007)

Sleep Medication

Important Points to Discuss with Patients

- Chronic use of sedatives may cause light, fragmented sleep
- Chronic use of sleep medications may lead to intolerance
- Alcohol abuse often leads to lighter sleep of shorter duration
- Alcohol and sedatives can worsen sleep apnea
- Do not start a sedative hypnotic agent without careful clinical assessment to identify the cause of sleep disturbance

Sleep Medication: Sedative Chronic Hypnotic Use

Studies of Benzodiazepines

- Prevalence of use increases with age (Olfson, 2015)
- Chronic use increases morbidity and mortality (Tiihonen, 2015)
- Chronic use may exacerbate sleep problems

To Help Patient Stop Use of Benzodiazepines

- Decrease dose by half for 2 weeks prior to full withdrawal; may need to taper more slowly
- Add replacement tablet, such as a nighttime acetaminophen, after tapering benzodiazepine

Nonprescription Sleep Products

Melatonin

- Used by nearly half of all older adults
- Prolonged-release melatonin: some evidence it can lead to circadian rhythm disorders

Not Recommended

- Sedating antihistamines (anticholinergic side effects)
- Alcohol (interferes with sleep later in the night)
- Valerian (herbal product that has little effectiveness)

Management

Sleep Disorders	Management
Sleep-Disordered Breathing (Sleep Apnea)	Medical, behavioral, positive airway pressure (PAP), surgical
Sleep Movement Disorders Periodic Limb Movement Disorder Restless Leg Syndrome	Medical, dopamine agonist (e.g., pramipexole or ropinirole), gabapentin off-label (FDA approved for restless leg syndrome)

Management

Sleep Disorders	Management
Circadian Rhythm Sleep Disorder	Bright-light therapy, melatonin, and ramelteon
REM Sleep Behavior Disorder	Drug-induced; remove the offending agent, clonazepam off-label, but adverse effects a concern in older patients (confusion, poor balance/ increased fall risk, etc.), melatonin, environmental safety interventions

Resources and Tools

Resource/Tool	Link
American Academy of Sleep Medicine (AASM)	http://www.aasmnet.org/
American Geriatric Society (AGS)	http://www.americangeriatrics.org/
Harrison's Principles of Internal Medicine	http://www.harrisonsim.com/
Epworth Sleepiness Scale	http://epworthsleepinessscale.com/about-the-ess/

Resources and Tools

Resource/Tool	Link
Fatigue Severity Scale	https://www.saintalphonsus.org/documents/boise/sleep-Fatigue-Severity-Scale.pdf
The Insomnia Severity Index and Pittsburgh Sleep Quality Index- information from partner/caregiver	https://consultgeri.org/try-this/general-assessment/issue-6.1

Resources and Tools

Resource/Tool	Link
Stanford Sleepiness Scale	http://www.thoracic.org/members/assemblies/assemblies/srn/questionaires/sss.php http://www.stanford.edu/~dement/sss.html

Resources

http://www.aasmnet.org/ Accessed November 2, 2016

http://www.americangeriatrics.org/ Accessed November 2, 2016

https://consultgeri.org/try-this/general-assessment/issue-6.1 Accessed November 2, 2016

http://epworthsleepinessscale.com/ Accessed November 2, 2016

http://epworthsleepinessscale.com/about-the-ess/ Accessed November 2, 2016

http://www.harrisonsim.com/ Accessed November 2, 2016

https://www.saintalphonsus.org/documents/boise/sleep-Fatigue-Severity-Scale.pdf Accessed November 2, 2016

http://www.stanford.edu/~dement/sss.html Accessed November 2, 2016

http://www.thoracic.org/members/assemblies/assemblies/srn/questionaires/sss.php Accessed November 2, 2016

References

American Geriatric Society. (2007). Geriatric Review Syllabus: Geriatric at your Fingertips and Assessing Care of Vulnerable Elders Quality Indicators. *J Am Geriatr Soc*. 55(S2).

American Geriatrics Society. (2009). *Pharmacological management of persistent pain in older persons*. Retrieved from http://www.americangeriatrics.org/files/documents/2009_Guideline.pdf. Accessed July 6, 2016

Abdulla A, Adams N, Bone M, Elliott AM, Gaffin J, Jones D, Knaggs R, Martin D, Sampson L, & Schofield P. (2013). Guidance on the management of pain in older people. *Age and Ageing*, 42(1), 11-57. doi: 10.1093/ageing/afs200

Bloom HG, Ahmed I, Alessi CA, Ancoli-Israel S, Buysse DJ, Kryger MH, Phillips BA, Thorpy MJ, Vitiello MV, & Zee PC. (2009). Evidence-based recommendations for the assessment of sleep disorders in older persons. *J Am Geriatr Soc*. 57(5): 761-789. Retrieved from http://www.ncbi.nlm.nih.gov/pmc/articles/PMC2748127/. Accessed July 6, 2016

Durso SC, & Sullivan G (Eds). (2013). *Geriatric review syllabus: a core curriculum in geriatric medicine*, 8th Ed. New York, NY: American Geriatric Society.

Gibson SJ, Katz B, Corran TM, Farrell MJ, & Helme RD. (1994). Pain in older persons. *Disabil Rehabil*. 16(3), 127-139. doi 10.3109/09638289409166289S

Hadjistavropoulos T, Herr K, Turk DC, Fine PG, Dworkin RH, Helme R, Jackson K, Parmelee PA, Rudy TE, Lynn Beattie B, Chibnall JT, Craig KD, Ferrell B, Ferrell B, Fillingim RB, Gagliese L, Gallagher R, Gibson SJ, Harrison EL, Katz B, Keefe FJ, Lieber SJ, Lussier D, Schmader KE, Tait RC, Weiner DK, & Williams J. (2007). An interdisciplinary expert consensus statement on assessment of pain in older persons. *Clin J Pain, 23*(1 Suppl), S1-43. doi:10.1097/AJP.0b013e31802be869

Ham R, Sloane P, Warshaw G, Potter J, & Flaherty E. (2014). *Ham's primary care geriatrics: A case-based approach* (6th ed.). Canada: Elsevier Canada.

Herr K, Coyne PJ, McCaffery M, Manworren R, & Merkel S. (2011). Pain assessment in the patient unable to self-report: position statement with clinical practice recommendations. *Pain Manag Nurs, 12*(4), 230-250. doi:10.1016/j.pmn.2011.10.002

Jakobsson U, Klevsgard R, Westergren A, & Hailberg IR. (2003). Old people in pain: A comparative study. *J Pain Symptom Manage*. 26, 625–636. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/12850645. Accessed July 6, 2016

Leveille SG, Jones RN, Kiely DK, Hausdorff JM, Shmerling RH, Guralnik JM, Kiel DP, Lipsitz LA, & Bean JF. (2009). Chronic musculoskeletal pain and the occurrence of falls in an older population. *JAMA*. 302(2), 2214–2221. doi:10.1001/jama.2009.1738

References

Mallampati SR, Gatt SP, Gugino LD, Desai SP, Waraksa B, Freiberger D, & Liu PL. (1985). A clinical sign to predict difficult tracheal intubation: a prospective study. *Can Anaesth Soc J, 32*(4), 429-434.

Medina-Walpole A, Alessi C, Zee P, Caley B, Reidenbach F, & Sherman A. (2016). *Geriatric review syllabus*. New York, NY: American Geriatric Society.

Podichetty VK, Mazanec DJ, & Biscup RS. (2003). Chronic non-malignant musculoskeletal pain in older adults: Clinical issues and opioid intervention. *Postgrad Med J*. 79(937), 627–633.

Olfson M, King M, & Schoenbaum, M. (2015). Benzodiazepine use in the United States. *JAMA psychiatry*. *72*(2), 136-142.

Reyes-Gibby CC, Aday L, & Cleeland C. (2002). Impact of pain on self-rated health in the community-dwelling older adults. *Pain*. 95 (1-2), 75–82.

Tiihonen J, Mittendorfer-Rutz E, Torniainen M, Alexanderson K, & Tanskanen A. (2015). Mortality and cumulative exposure to antipsychotics, antidepressants, and benzodiazepines in patients with schizophrenia: an observational follow-up study. *American Journal of Psychiatry*. *173*(6), 600-606.

Tracy B, & Sean Morrison R. (2013). Pain management in older adults. *Clin Ther*. 35(11) 1659-1968. doi:10.1016/j.clinthera.2013.09.026

Wells N, Pasero C, & McCaffery M. (2008). Improving the quality of care through pain assessment and management. In: Hughes RG (Ed.). *Patient safety and quality: An evidence-based handbook for nurses*. Vol. 1. Rockville (MD): Agency for Healthcare Research and Quality.

Williams BA, Chang A, Ahalt C, Chen H, Conant R, Landefeld C, Ritchie C, & Yukawa M. (2014). *Current diagnosis and treatment: geriatrics*, 2nd ed. New York, NY: McGraw-Hill.