Session 4: Primary Care Approaches to Shift Work Disorder: Burden of Illness and Rationale for Therapeutic Intervention

Learning Objectives

1. Describe the pathophysiologic basis of circadian rhythm misalignment and its relationship to sleep/wake and light/dark cycles, cardiometabolic function, mood/cognition, activities of daily living, and overall health.
2. Assess the consequences of circadian misalignment on sleep/wake timing, physiology, performance, and behavior.
3. Identify and differentially diagnose shift work disorder (SWD) based on symptomatology, patient history, and findings obtained from a thorough sleep history, sleep diaries/logs, and other assessment tools.
4. Formulate initial and ongoing treatment plans for SWD that incorporate evidence-based nonpharmacologic and pharmacologic modalities.
5. Improve ongoing management of patients with SWD by monitoring treatment responsiveness and establishing appropriate referral pathways to ensure continuity of care.

Faculty

Paul P. Doghramji, MD, FAAFP
Brookside Family Practice & Pediatrics
Pottstown, Pennsylvania

Dr. Doghramji is co-founder of Brookside Family Practice & Pediatrics, a current affiliate of Pottstown Medical Specialists in Pottstown, Pennsylvania. He has also been attending physician in family practice, chair of the utilization management committee, and physician advisor at Pottstown Memorial Medical Center. Most recently, he has moved his practice location to Collegeville Family Practice in Collegeville, Pennsylvania.

Dr. Doghramji received his medical degree from Jefferson Medical College in Philadelphia and completed his residency in family practice at Chestnut Hill Hospital, also in Philadelphia. He is a fellow of the American Academy of Family Physicians and a member of the National Headache Foundation and Chronic Fatigue and Immune Dysfunction Syndrome Association. He was certified by the American Board of Family Practice in 1985, and has been recertified every six years since then. Dr. Doghramji is also medical director for health services at Ursinus College in Collegeville and assistant medical director for health services at the Hill School in Pottstown.

Dr. Doghramji has been a recipient of the American Medical Association Physician Recognition Award in all qualifying years since leaving residency. He has published and lectured and has been a patient education specialist on various topics in family practice, especially insomnia, fatigue, and sleep disorders.

Thomas Roth, PhD
Clinical Professor of Psychiatry
University of Michigan School of Medicine
Ann Arbor
Director, Sleep Disorders and Research Center
Henry Ford Hospital
Detroit, Michigan

Dr. Roth is director of the Sleep Disorders and Research Center at Henry Ford Health System in Detroit, Michigan. In addition to his position at Henry Ford, he is a clinical professor of psychiatry at the University of Michigan School of Medicine in Ann Arbor.

Dr. Roth’s research primarily focuses on sleep processes. His work includes research on sleep loss, sleep fragmentation, and deviation from sleep processes, including pharmacologic effects and sleep pathologies.

Dr. Roth has held numerous leadership positions within his field. He is past chairman of the National Center on Sleep Disorders Research Advisory Board at the National Institutes of Health and past president of the United States Sleep Research Society, the American Sleep Disorders Association, and the National Sleep Foundation. He also served as editor-in-chief of the journal Sleep.
Dr Roth received his doctorate degree from the University of Cincinnati in 1970. He has published more than 310 manuscripts, 12 edited volumes, 150 chapters, and 450 abstracts.

**Faculty Financial Disclosure Statements**

The presenting faculty reports the following:

Paul P. Doghramji, MD, serves on the advisory board and speakers’ bureau for Purdue Pharma L.P. He is on the advisory board for UCB S.A. and is a member of the speakers’ bureau for Teva Pharmaceutical Industries Ltd. and URL Pharma, Inc.

Thomas Roth, PhD, is a consultant for Abbott Laboratories; Acadia Pharmaceuticals; Acologix, Inc.; Acorda Therapeutics, Inc.; Actelion Ltd.; Addrenex Pharmaceuticals, Inc.; Alchemers; Alza; Angel Pharmaceuticals, Inc.; Arena Pharmaceuticals, Inc.; AstraZeneca; Aver Pharmaceuticals; Bayer; Bristol-Myers Squibb Pharmaceuticals Ltd; BTG; Cypress Pharmaceutical, Inc.; Dove; Eisai; Elan; Eli Lilly and Company; Evotec; Forest; Hypnion; Impax; Intec Pharma Ltd.; Intracellular Therapies; Jazz Pharmaceuticals, Inc.; Johnson & Johnson; King Pharmaceuticals Inc.; Lundbeck; McNeil; MediciNova; Neurim Pharmaceuticals Ltd.; Neurogen Corp.; Novartis; Orexo; Organon Pharmaceuticals USA Inc.; Otsuka Pharmaceutical Company, Ltd.; Prestwick Pharmaceuticals, Inc.; Proctor & Gamble; Resteva; Roche/Genentech; Servier; Shire; Vivometrics; and Yanda. He receives grant/research support from Aventis, and is consultant for and receives grant/research support from Merck; Neurocrine Biosciences, Inc.; Pfizer Inc.; Schering-Plough; Syrex; Takeda; TransOoral; Wyeth; XenoPort; and Yamanouchi Pharmaceutical Co., Ltd. He is a consultant and serves on the speakers bureau for GlaxoSmithKline and Purdue Pharma L.P. Dr Roth is a consultant, speakers’ bureau member and receives grant/research support from Cephalon Inc., sanofi-aventis, and Sepracor Inc.

**Education Partner Financial Disclosure Statements**

The content collaborators at Asante Communications, LLC, report the following:

Chris Ontiveros, PhD, has no financial relationships to disclose.

**Suggested Reading List**

Culpepper L. The social and economic burden of shift work. *J Fam Pract*. 2010;59(1 suppl):S3-S11.


Session 4
1:00 PM- 2:15 PM

Primary Care Approaches to Shift Work Disorder: Burden of Illness and Rationale for Therapeutic Intervention

Speakers:
Paul P. Doghramji, MD, FAAFP
Thomas Roth, PhD

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Pharmacotherapeutic Agents in this Program

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<th>Generic</th>
<th>Trade</th>
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<tr>
<td>Armodafinil</td>
<td>Nuvigil®</td>
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<tr>
<td>Lisinopril/hydrochlorothiazide</td>
<td>Prinivil®, Zestoretic®</td>
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<tr>
<td>Metformin</td>
<td>Glucophage®, Glucophage XR®, Glumetza®, Fortamet®, Riomet®</td>
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<td>Modafinil</td>
<td>Provigil®</td>
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<tr>
<td>Pioglitazone</td>
<td>Actos®</td>
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<tr>
<td>Simvastatin</td>
<td>Zocor®</td>
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<tr>
<td>Temazepam</td>
<td>Restoril®</td>
</tr>
<tr>
<td>Trazodone</td>
<td>Halodene®</td>
</tr>
</tbody>
</table>

XR, extended release.

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Off-Label/Investigational Discussion
In accordance with pmicine policy, faculty have been asked to disclose discussion of unlabeled or unapproved use(s) of drugs or devices during the course of their presentations.
Demographic Question

Approximately how many patients are you treating for Shift Work Disorder?

1. None
2. 1-5
3. 6-10
4. 11-20
5. Over 20

Pre-Activity Evaluation

Obtaining a thorough sleep history and sleep log is usually sufficient to diagnose shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Pre-Activity Evaluation

Shift work disorder is characterized by excessive sleepiness and insomnia.

1. Strong disagree
2. Disagree
3. Agree
4. Strongly agree

Pre-Activity Evaluation

The majority of shift workers have shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Pre-Activity Evaluation

Behavioral and pharmacologic treatment options are available to treat shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Pre-Activity Evaluation

Evening bright light is an appropriate therapy for night shift workers who complain of poor mood and sleepiness at work.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
Shift Work Disorder
Sleep/Wake Misalignment Matters

Thomas Roth, PhD
Clinical Professor of Psychiatry
University of Michigan School of Medicine
Ann Arbor, Michigan
Director, Sleep Disorders and Research Center
Henry Ford Hospital
Detroit, Michigan

Circadian Rhythms
Early Observations

Jean-Jacques de Mairan, 1729.

Circadian Rhythms
Daily Physiologic and Behavioral Patterns

Noon

12:00

Midnight

24:00

Best coordination
14:30

Fastest reaction time
15:30

Greatest cardiovascular efficiency and muscle strength
17:00

18:00

19:00

Highest BP

21:00

Melatonin secretion starts
22:30

Bowel movements suppressed

Deepest sleep
02:00

Lowest body temperature
04:30

Sharpest rise in BP
06:45

Melatonin secretion stops
07:30

Bowel movement likely
08:30

Highest testosterone secretion
09:00

High alertness
10:00

BP, blood pressure.


Circadian Rhythm Hierarchy
Entrainment of the SCN and Peripheral Clocks

GI, gastrointestinal; RHT, retinohypothalamic tract; PG, pineal gland; SCN, suprachiasmatic nucleus; WBC, white blood cell.


Circadian Rhythms in Human Function

Insulin
Plasma Leptin
Median Systolic BP

Short-term Memory
Care Body Temperature

Subjective Alertness
Melatonin

Alerting signal
CTP

Relative Bone Reabsorption

24-h Time
24-h Time
24-h Time
24-h Time

BP, blood pressure; CTP, carboxy-terminal pyridinoline.


Two-Process Model of Sleep
Circadian Alerting Signal

Alerting signal
Sleep

Time of Day

Two-Process Model of Sleep


Time of Day

Sleep

Alerting

Sleep signal

Alerting signal

Two-Process Model of Sleep

Circadian Dyssynchrony

• Sleep/wake cycle perturbed when misaligned with environmental cues
• Types
  – Normal endogenous circadian rhythms are misaligned with conventional or socially acceptable sleep/wake times (eg, SWD, JLD)
  – Abnormal endogenous circadian rhythm changes relative to expected sleep/wake times (eg, ASPD, DSPD)

ASPD, advanced sleep phase disorder; DSPD, delayed sleep phase disorder; JLD, jet lag disorder; SWD, shift work disorder.


Circadian Misalignment

Cognitive Impairment

• Attention
  – Reduced ability to concentrate and continue performing
  – Difficulties sustaining attention and alertness
• Memory
  – Decreased working memory capacity
  – Reduced memory of facts
  – Reduced recall of events or episodes
• Executive function
  – Reduced ability to multitask
  – Reduced decision making
  – Reduced creativity and productivity


Circadian Misalignment

Cognitive and Performance Deficits

PVT Median RT, msec

Day of Study

ADD, mathematical addition test; DSST, digit symbol substitution test; PVT, psychomotor vigilance test; RT, reaction time.

N=7.


Sleep Restriction and Circadian Disruption

Adverse Metabolic Effects

Glucose

Basal

Sleep restriction plus circadian disruption

Insulin

Basal

Sleep restriction plus circadian disruption

N=11 subjects mean age 23 ± 2 years (5 females).


Brain CRSDs

Mood disorders

Lymphocytes

Inflammation

Heart

Cardiovascular disease

Breast

Breast cancer

Kidney

Electrolyte imbalance

Muscle

Insulin resistance

Liver

Insulin resistance

Steatohepatitis

Pancreas

Abnormal insulin secretion

Gastrointestinal Tract

Nutrient malabsorption

Diarrhea

Chronic Circadian Misalignment

Circadian Misalignment

Dyssynchrony and Morbidity

Muscle

Insulin resistance

Brain

CNS/Org

Mood disorders

Lymphocytes

Inflammation

Heart

Cardiovascular disease

Breast

Breast cancer

Kidney

Electrolyte imbalance

Pancreas

Abnormal insulin secretion

Gastrointestinal Tract

Nutrient malabsorption

Diarrhea

Muscle

Insulin resistance

Liver

Insulin resistance

Steatohepatitis

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Gastrointestinal Tract

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Diarrhea

Liver

Insulin resistance

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Gastrointestinal Tract

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Diarrhea

Muscle

Insulin resistance

Liver

Insulin resistance

Steatohepatitis

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Muscle

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Diarrhea

Muscle

Insulin resistance

Liver

Insulin resistance

Steatohepatitis

Pancreas

Abnormal insulin secretion

Gastrointestinal Tract

Nutrient malabsorption

Diarrhea
Shift Work Types

<table>
<thead>
<tr>
<th>Shift Type</th>
<th>Work Time</th>
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<tbody>
<tr>
<td>Evening</td>
<td>Between 2 PM and midnight</td>
</tr>
<tr>
<td>Day</td>
<td>Between 4 AM and 7 PM</td>
</tr>
<tr>
<td>Night</td>
<td>Between 9 PM and 8 AM</td>
</tr>
<tr>
<td>Rotating</td>
<td>Periodic time changes among days, evenings, nights</td>
</tr>
<tr>
<td>Split</td>
<td>Two distinct work periods/day</td>
</tr>
<tr>
<td>Irregular</td>
<td>Varying times by employer</td>
</tr>
</tbody>
</table>

Shift Work–Related Accident Risk

<table>
<thead>
<tr>
<th>Shift Type*</th>
<th>Time of Night†</th>
<th>Successive Work Nights‡</th>
</tr>
</thead>
<tbody>
<tr>
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<td></td>
<td></td>
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</tbody>
</table>

*Data from a meta-analysis of 6 separate studies; †Data derived from a meta-analysis of 10 different studies; ‡Data derived from a meta-analysis of 7 different studies.


Comorbidities Significantly Associated With Shift Work

- Cancer
- Gastrointestinal problems
- Cardiometabolic dysfunction
- Reproductive abnormalities
- Mood and anxiety disorders
- Sleep disorders

Cardiovascular Disease Among Shift Workers

Cross-sectional studies
- Relative risk and 95% CI (log scale)

<table>
<thead>
<tr>
<th>Study</th>
<th>Relative Risk</th>
<th>95% CI</th>
</tr>
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</tbody>
</table>

Cardiovascular diseases evaluated in this meta-analysis include myocardial infarction, hypertension, and ischemic heart disease among others.


Shift Work Disorder

Diagnostic Criteria

- Complaint of insomnia or ES that is temporally associated with a recurring work schedule that overlaps the usual time for sleep
- Symptoms are associated with the shift-work schedule over the course of at least 1 month
- Sleep log or actigraphy monitoring (with sleep diaries) for at least 7 days demonstrates sleep-time misalignment and disturbed circadian rhythms
- Sleep disturbance is not better explained by another current sleep disorder, medical or neurological disorder, mental disorder, medication use, or substance use disorder

ARS Question

Have you ever officially diagnosed any of your patients with shift work disorder?

1. Yes
2. No
**Shift Work Disorder**

**Prevalence in Night and Rotating Shift Workers**

- **Night Workers**:
  - +SWD: 32.1%
  - -SWD: 67.9%

- **Rotating Workers**:
  - +SWD: 29.1%
  - -SWD: 73.9%

There are approximately 21 million shift workers in the United States.

**Shift Work Disorder Adversely Affects Biopsychosocial Parameters**

- Ulcers
- Depression
- Missed Family/Social Activities

<table>
<thead>
<tr>
<th>Prevalence of Ulcers, %</th>
<th>Prevalence of Depression, %</th>
<th>Missed Family/Social Activities, %</th>
</tr>
</thead>
<tbody>
<tr>
<td>Day</td>
<td>Night</td>
<td>Rotating</td>
</tr>
<tr>
<td>0.5%</td>
<td>3.0%</td>
<td>0.5%</td>
</tr>
<tr>
<td>1.0%</td>
<td>10.0%</td>
<td>1.0%</td>
</tr>
</tbody>
</table>

*P < 0.05 vs nonsymptomatic workers on the same shift.*

**Eric**

**Recent ED Visit**

- MVA while driving early morning bakery delivery truck
- Reports occasionally “spacing out or dozing off” while driving during work
- Presents with minor scrapes and bruises on arms; injuries unremarkable otherwise
- Patient discharged and told to follow up with PCP

**Eric**

**PCP Visit**

- Working past 2 months as night baker/morning bakery delivery driver after his position at local grocery store was eliminated and he could not find employment for 3 months
- Concerns about
  - Possible job loss after recent MVA and financially supporting his wife and 2 teenage daughters
  - Frequent forgetfulness, concentration lapses, tiredness, fatigue, and unreported near-miss accidents at work

**Presented to PCP**

**Personal History**

- 47 years old, married with 2 teenage daughters
- Baker and bakery van driver, Monday to Friday, 11 PM to 7 AM

**Medical History and Medications**

- Type 2 diabetes, diagnosed 7 years ago
  - Metformin ER 1000 mg daily (Biguanide)
  - Pioglitazone 30 mg daily (Thiazolidinedione)
  - Hypertension, diagnosed 3 years ago
  - Lisinopril/hydrochlorothiazide 20/35 mg daily (ACE inhibitor/Thiazide)
  - Simvastatin 40 mg daily (Statin)

**Physical Examination**

- Height: 6’1”
- Weight: 266 lb
- BMI: 35.1 (Obese)
- Neck circumference: 15.5 inches

**Vital Signs**

- BP: 145/95 mm Hg
- HR: 87 beats/min
- RR: 19 breaths/min

**Laboratory**

- Serum glucose: 160 mg/dL
- Hgb: 10.6 g/dL
- Creatinine: 0.7 mg/dL
- Gamma GT: normal

**Drug classes indicated in parentheses.**

- ACE, angiotensin converting enzyme; BMI, body mass index; BP, blood pressure; Chem-12, Chemistry-12; ER, extended-release; GT, gamma glutamyl transferase; Hgb, hemoglobin; HbA1c, glycosylated hemoglobin A1c; HR, heart rate; LDL, low-density lipoprotein; RR, respiratory rate; Vital signs rounded to the nearest integer.
ARS Question

How often do you CURRENTLY obtain a sleep history?
1. Always
2. Most of the time
3. Sometimes
4. Never

Recognizing Sleep Problems

• Screen patients with the following questions
  — How is your sleep?
  — Do you have trouble getting to sleep or staying asleep?
  — Do you get drowsy during the day or at inappropriate times?
• Review medical history and physical exam for
  — Possible coexisting psychiatric and medical illnesses that put patients at higher risk for insomnia
  — Prescription and nonprescription medications
  — Environmental factors that contribute to insomnia
• Interview bed partner


Shift Work Disorder

Characterizing Sleep/Wake Problems

Sleep History (eg, patient interview)  Questionnaires (eg, ESS)

Sleep Diary/Log  Actigraphy  Circadian Phase Markers (eg, CBTmin, DLMO)

ARS Question

How often do you ever ask your patients what shift they work?
1. Always
2. Most of the time
3. Sometimes
4. Never

CRD Assessment

Sleep Log/Diary

Epworth Sleepiness Scale

Rate Your Chance of Dozing Off: 0 = None, 1 = Slight, 2 = Moderate, 3 = High

Situation | Chance of Dozing Off
--- | ---
Sitting and reading | 2
Watching TV | 2
Sitting inactive in a public place (eg, in a theater or at a meeting) | 2
As a passenger in a car for an hour without a break | 3
Lying down to rest in the afternoon when circumstances permit | 2
Sitting and talking to someone | 1
Sitting quietly after a lunch without alcohol | 1
In a car while stopped for a few minutes in traffic | 1

Total ESS* score = 14

*ESS score <10 = normal; 10-12 mild sleepiness; 13-15 moderate sleepiness; ≥16 = severe sleepiness.


CRD, circadian rhythm disorder.
Epworth Sleepiness Scale

Rate Your Chance of Dozing Off: 0 = None, 1 = Slight, 2 = Moderate, 3 = High

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Total ESS* score: 14

*ESS score: 10 = Normal; 10-12 = Mild sleepiness; 13-15 = Moderate sleepiness; 16+ = Severe sleepiness.


Symptoms and Differential Diagnosis of Shift Work Disorder

• ES and insomnia are the defining symptoms and can result in
  - Fatigue
  - Difficulty concentrating
  - Reduced work performance
  - Headache
  - Irremediability or depressed mood
  - Unrefreshed sleep

• Overlapping symptomatology with
  - Other sleep/wake disorders
  - OSA and RLS commonly reported in shift workers
  - Sleep deprivation
  - Mood disorders
  - Brain injury
  - Sedative/stimulant use or abuse

OSA, obstructive sleep apnea; RLS, restless legs syndrome.


Conclusions

• Shift work is associated with serious medical and psychiatric conditions, such as SWD, mood disorders, and cardiometabolic abnormalities
• ES, insomnia, and mood and performance impairments can be used as surrogate markers to identify shift work disorder
• Obtaining a thorough sleep history and sleep log is usually sufficient to diagnose shift work disorder
• The majority of shift workers do not have shift work disorder

Initial and Ongoing Treatment

Reducing Symptoms and Realigning Rhythms

Paul P. Doghramji, MD
Family Physician
Collegeville Family Practice
Medical Director of Health Services
Ursinus College
Collegeville, Pennsylvania
Shift Work Disorder

Treatment Goals

• Increase nighttime alertness
• Reduce daytime insomnia
• Align circadian rhythms

Behavioral SWD Management

Good Sleep Hygiene Promotes Better Sleep

Step | Practical Advice
--- | ---
1. Keep sleep room dark, especially if used during daylight | • Ensure room has sufficiently well-lined curtains
• Install blackout blinds on all windows
2. Ensure a consistent bedroom temperature | • Aim for a temperature of around 68°F (20°C)
• Avoid wearing too many clothes to bed
3. Treatise noise | • Avoid watching television or listening to loud music immediately before the required sleep period
• Use a room at the rear of the house if near a busy road
• Consider earplugs if the ambient noise is intrusive
• Put telephones on the answering machine
• Ask families to limit noise
4. Avoid large meals, caffeine-containing drinks, smoking, and alcohol before bedtime | • Schedule main meal of the day before the work period
• Consider having a warm, milky drink before the required sleep period

AASM Shift Work Disorder Treatment Recommendations

<table>
<thead>
<tr>
<th>Treatment</th>
<th>Rating</th>
</tr>
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<tbody>
<tr>
<td>Planned sleep schedules</td>
<td>Standard</td>
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<tr>
<td>Timed light exposure</td>
<td>Guideline</td>
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<tr>
<td>Timed melatonin administration</td>
<td>Guideline</td>
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<tr>
<td>Hypnotics</td>
<td>Guideline</td>
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<tr>
<td>Alerting agents</td>
<td>Guideline</td>
</tr>
<tr>
<td>Caffeine</td>
<td>Option</td>
</tr>
</tbody>
</table>

ARS Question

Which treatment approach would you take for a SWD patient with complaints of ES and insomnia?

1. First treat sleepiness then insomnia
2. First treat insomnia then sleepiness
3. Treat sleepiness and insomnia simultaneously
Bright Light Pulses in Simulated Shift Work
Improvement With Partial Re-entrainment

Mood disturbance

Performance

Naps and Caffeine Enhance Performance and Alertness in Night Shift Workers

Prescription Pharmacotherapy
AASM Recommendations for SWD

OTC Pharmacotherapy
AASM Recommendations for SWD

Melatonin
Timing Is Key
Melatonin
Phase Resetting and Hypnotic Effects in Simulated Night Shift Work

- Morning melatonin phase advances.†
- Morning melatonin increases total sleep time.†

Similar phase shifting and hypnotic effects are reported in jet lag disorder.†

Hypnotics in Shift Workers
Improved Sleep and Next-Day Cognition

- Improved sleep and next-day cognition (AUC, area under the curve; DEQ, drug effect questionnaire; MSLT, multiple sleep latency test).
- CGI-C, Clinical Global Impressions-Change; KSS, Karolinska Sleepiness Scale.

Armodafinil in Shift Work Disorder
Reduced Sleepiness and Next-Day Cognition

- Armodafinil in Shift Work Disorder
- Improved Sleep and Next-Day Cognition
- CGI-C, Clinical Global Impressions-Change; KSS, Karolinska Sleepiness Scale.
- CGI-C, Clinical Global Impressions-Change; KSS, Karolinska Sleepiness Scale.

Armodafinil in Shift Work Disorder
Reduced Sleepiness and Improved Mood

- Armodafinil and Modafinil in Shift Work
- Reduced Sleepiness and Improved Mood
- CGI-C, Clinical Global Impressions-Change; KSS, Karolinska Sleepiness Scale.
- CGI-C, Clinical Global Impressions-Change; KSS, Karolinska Sleepiness Scale.

Eric—Shift Work Disorder
Treatment

- Sleepiness
- CGI-C Improvement
- CGI-C Improvement
- CGI-C Improvement
- CGI-C Improvement

- AASM Recommendations
- Therapy Recommendations
- Therapy Recommendations
- Therapy Recommendations

- Minimize light near end of the shift; maximize light during shift
- Promote good sleep hygiene
- Avoidance of caffeine
- Avoidance of coffee during second half of night shift
- Recognize sleepiness when driving
- Keep sleep diary ≥2 weeks prior to follow-up

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Eric—Shift Work Disorder

Sleep Log

- Please indicate the time you went to bed with the letter “x”
- Please indicate the time of your bedtime sleep with a solid line.
- Indicate naps with a dashed line (—)
- Please indicate lights out with a down arrow (↓)
- Please indicate time out of bed with an up arrow (↑)

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- How many times did you wake after falling asleep?
  - Wake up to alarm clock?
  - Rested after sleep?

- Would you restructure this patient’s treatment to address his ongoing impaired mood, emotional lability, and ESS?

When to Consider a Sleep Consultation and/or Referral

- Chronic sleep/wake complaints cannot be explained or remedied fully
- Suspicion of narcolepsy and OSA
- Unusual behaviors during sleep, with or without sleepiness

Collaborative and continuous care of patients optimizes outcomes

ARS Question

Which approach would you most likely take if a sleep study referral found that your SWD patient had obstructive sleep apnea (OSA)?

1. First treat the OSA, then the SWD
2. First treat the SWD, then the OSA
3. Treat both simultaneously

Conclusions

- Treatment of patients with SWD should focus on increasing alertness, reducing sleep problems, and aligning circadian rhythms
- Behavioral and pharmacologic treatment options are available to treat shift work disorder
- Management of patients with SWD includes monitoring treatment responsiveness and establishing appropriate referral pathways as necessary to ensure continuity of care

Post-Activity Evaluation

Obtaining a thorough sleep history and sleep log is usually sufficient to diagnose shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree
Post-Activity Evaluation

Shift work disorder is characterized by excessive sleepiness and insomnia.

– Strong disagree
– Disagree
– Agree
– Strongly agree

Post-Activity Evaluation

The majority of shift workers have shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Post-Activity Evaluation

Behavioral and pharmacologic treatment options are available to treat shift work disorder.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Post-Activity Evaluation

Evening bright light is an appropriate therapy for night shift workers who complain of poor mood and sleepiness at work.

1. Strong disagree
2. Disagree
3. Neutral
4. Agree
5. Strongly agree

Questions & Answers