

INSOMNIA

Part II

by

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Radio

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- Introduction
- Bible verse
 - Genesis 31:40 – Thus I was; in the day the drought consumed me, and the frost by night; and my sleep departed from mine eyes.
 - Psalm 127:2- it is vain for you to rise up early, to sit up late, to eat the bread of sorrows: for so he giveth his beloved sleep.
 - Psalm 4:8 – I will both lay me down in peace, and sleep: for thou, Lord only makest me dwell in safety.
 - Proverbs 3:24 – When thou liest down, thou shalt not be afraid: yea, thou shalt lie down, and thy sleep shall be sweet.
- Insomnia – details of interest
 - The definition of insomnia includes:
 - difficulty falling asleep
 - difficulty staying asleep
 - non-restorative sleep
 - daytime distress from not sleeping
 - present for > 1 month for 3 times per week
 - Prevalence ranges from:
 - 30-50% with a broad definition
 - 10% with a strict or diagnostic criteria definition.
 - Insomnia can be both:
 - a symptom of another disorder; 90% have a comorbid condition
 - a disorder itself; 10% of insomniacs have primary insomnia

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- Insomnia is a disorder of hyperarousal with:
 - ↑brain metabolism
 - ↑ANS (autonomic nervous system) activity
 - EEG spectral analysis changes
 - heme polymerization array (HPA) changes
 - ↑NE (norepinephrine)
- Comorbidity is common with insomnia:
 - Insomniacs have significant anxiety, 17 times more than those without insomnia.
 - Insomniacs have significant depression, 9 times more than those without insomnia.
 - 75% of those with insomnia have another psychiatric disorder.
 - 90% of those with a recent suicide attempt had a sleep disturbance.
- CBT (cognitive behavioral treatment) for insomnia includes:
 - stimulus control - ↓light and noise
 - sleep hygiene - ↓caffeine and alcohol
 - sleep restriction – no daytime naps
 - relaxation training
 - cognitive therapy of dysfunctional beliefs
 - paradoxical training – stay up as long as possible
- Antidepressants alter sleep:
 - SSRIs, SNRIs, MAOIs tend to ↓sleep continuity and ↓REM sleep;
 - bupropion ↑REM sleep;
 - Trazodone, amitriptyline, doxepin, and mirtazapine ↑sleep continuity
- OSA (obstructive sleep apnea) is a primary sleep disorder where the airway collapses repeatedly during sleep causing pauses in breathing and arousals.
- Sleep related movement disorders include:
 - PLM (periodic limb movement)

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- RLS (restless leg syndrome)
- Insomnia medication are common:
 - 10% of people are on prescription medication for insomnia
 - 20% take OTC sleep aids
 - 13% take alcohol as a sleep aide
 - 1930's – barbiturates used but addition and dangers in overdose, ↓REM
 - 1970's – benzodiazepines as hypnotics, only mild ↓REM, ↓SWS-stage 3&4
- Treatment for insomnia improves sleep and daytime functioning for many.
- A sleep diary is helpful in assessing insomnia
- Insomnia can result in psychiatric disorders; psychiatric disorders can result in insomnia; the relationship is bi-directional
- If sleep improves, depression and anxiety decrease
- Health care cost in general decrease with treatment of insomnia
- Sleep stages, medications, and various factors

Issue	REM	NERM 1	2	3	4	REM rebound	restorative sleep	less overall
benzodiazepines	↓			↓	↓	✓		
Ambien	NC			NC	NC	NC		
Lunesta	NC			↑	↑	NC		
Rozerum	NC	NC	NC	NC	NC	NC		
TCA	↓					✓		
aged								Y
trazadone	NC			↑				

I = inhibited or ↓ (decreased)

NC = no change

Y = Yes

- Sleep/wake—brain circuits and neurotransmitters

Several brain circuits are important in the sleep/wake cycle:

hypothalamus

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- suprachiasmatic nucleus of the hypothalamus (SCN)—promotes wakefulness or sleep, circadian pacemaker
 - supraventricular zone (SPZ)—amplifies SCN signals
 - dorsomedial nucleus (DMN)—amplifies SCN signals
 - tuberomammillary nucleus of posterior hypothalamus (TMNPH)—promotes wakefulness
 - posterior lateral hypothalamus (PLH)—promotes wakefulness
 - paraventricular nucleus (PVN)—controls pineal melatonin release
 - ventrolateral preoptic nucleus of the hypothalamus (VLPO)—sleep initiation
 - anterior hypothalamus (AH)—promotes sleep
- Several neurotransmitters are important in the sleep/wake cycle:
 - GABA—high in slow-wave sleep, high in REM sleep
 - Ach—moderate in external and internal vigilance, high in REM sleep
 - histamine—moderate in external and moderate in internal vigilance
 - NE—high in external and moderate in internal vigilance, low in slow-wave sleep
 - 5HT—high in external and moderate in internal vigilance, low in slow-wave sleep
 - D—high in external and moderate in internal vigilance
 - orexin—high in external and high in internal vigilance
- Other brain areas involved in sleep/wake cycle include:
 - cortex
 - D reduces thalamic filter
 - hypothalamic-pituitary-adrenal axis with CRF, Ach, cortisol, NE
 - NMDA receptor hypofunction results in sensory overload

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- Questions regarding sleep include:
 - Do you have difficulty falling asleep (DFA); how many hours?
 - Do you have early morning awakening (EMA); what time?
 - Is your sleep restless?
 - How many weeks or months have you experienced poor sleep?
 - What are your biggest three worries in one word each?
 - 1.
 - 2.
 - 3.
 - Do you snore?
 - Do you drink caffeine drinks after 3pm?.
 - Name any medical disorders you have.
 - What medicines are you on now?
 - What medicines have you tried for your insomnia (give results or side effects)?
 - How many hours on average do you sleep each night?
 - What time do you normally go to sleep and what time do you wake up?

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- What is your bedtime routine (watching TV, reading, exercise)?
- Why do you think you can't sleep (worry, pain, don't know)?
- Do you use nicotine or alcohol late in the day?
- Do you have nocturnal anxiety or panic?
- Do you have mood changes or racing thoughts?
- Are you exposed to light or noise at night?
- Do you have any allergies?
- Do you sleep walk or talk?
- Do you have any substance abuse (name _____)?
- Do you nap during the day?
- Do you thrash your limbs while sleeping (RLS and myoclonic jerks)?
- Have you ever had a sleep study?
- The answers to the above questions determines the drug chosen to treat the insomnia. For example:
 - a GABA alpha 1 drug such as Ambien might be chosen for situational anxiety.
 - Trazadone or Rozerem might be chosen if addiction is a major fear.
 - If addiction is not a concern but cost is then temazepam (Restoril) might be chosen.
 - A dopamine agonist such as Requip or Mirapex might be chosen if RLS is involved.

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- Sleep hygiene might be stressed if daytime naps, late exercise, and caffeine are involved.
- An opioid such as Vicodin (hydrocodone + acetaminophen) might be chosen for one with acute pain and insomnia plus RLS.
- Methotrimeprazine (Levoprome) a phenothiazine with analgesic effects, might be chosen for schizophrenic with insomnia and pain.
- Vistaril (hydroxycine) might be chosen for a client who has a URI, insomnia, and pain.
- Rozerum might be chosen in shift-work sleep disorder.
- Ativan (lorazepam) might be chosen in an alcoholic with insomnia, withdrawal symptoms, and liver disease.
- polysomnography (PSG)
 - PSG is a device used in sleep labs to monitor several parameters (EEG/electroencephalogram, EOG/electrooculogram, EMG/electromyogram, ECG/electrocardiogram, pulse oximeter, and piezo crystal effort sensor for breathing) during sleep.

Conclusion

Bible Verse

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