

MOOD DISORDERS AND SLEEP

Taken from "*TEXTBOOK OF MOOD DISORDERS*" chapter 43

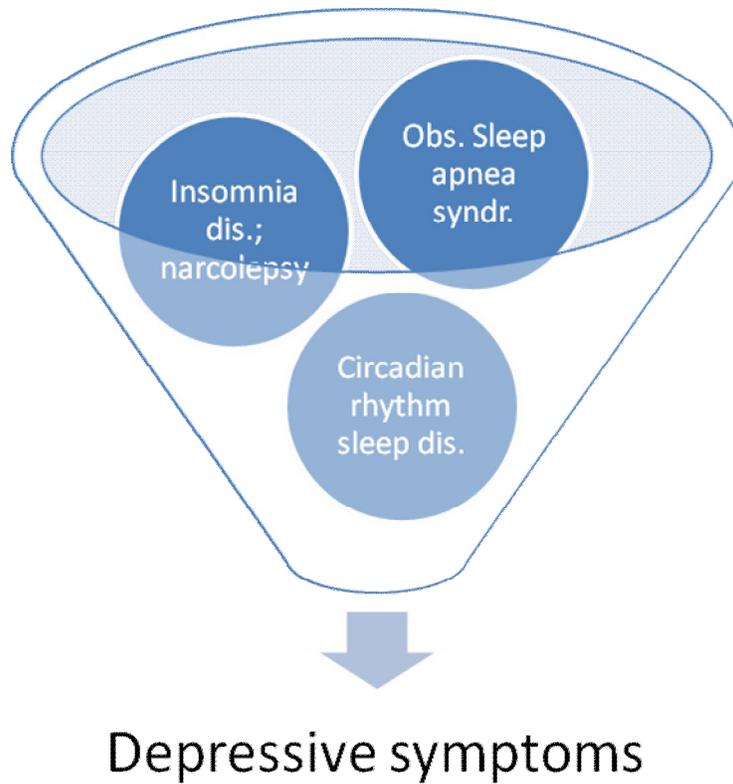
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TOPICS

- ⦿ Symptom Overlap Between Sleep and Mood Disorders
- ⦿ Risk Relationships Between Sleep and Mood Disorders
- ⦿ Electroencephalogram Sleep Findings in Mood Disorders
- ⦿ Sleep Deprivation and Mood Disorders
- ⦿ Theoretical Models of Sleep Disturbance in Depression
- ⦿ Neurobiology of Sleep in Mood Disorders
- ⦿ Therapeutic Implications of Sleep Disturbances in Mood Disorder

Symptom Overlap Between Sleep and Mood Disorders

- ⦿ Sleep symptoms are very common among patients with mood disorders
 1. In depression → insomnia, hypersomnia, and dream disturbances
 2. In mania → severe sleep loss
- ⦿ Conversely, mood symptoms are common among patients with specific sleep disorders



Risk Relationships Between Sleep and Mood Disorders

- ⦿ Mood disorder ↔ sleep (bidirectional)
- ⦿ Mood disorders and mood disturbances are **significant risk factors** for both insomnia and hypersomnia
- ⦿ Conversely, symptoms of insomnia are **strong risk factors** for the subsequent development of mood disorders

Electroencephalogram Sleep Findings in Depressive Disorders

Type of measure	Usual finding in patients with major depression
Sleep continuity measures	
Sleep latency (time to fall asleep)	Increased
Number of awakenings	Increased
Duration of wakefulness	Increased
Sleep efficiency (total sleep time/time spent in bed)	Decreased
Sleep architecture measures	
Non-REM Stage 1 sleep %	No change or increased
Non-REM Stage 2 sleep %	No change or increased
Non-REM Stage 3/4 sleep %	No change or decreased
REM sleep %	Increased

REM sleep measures

REM sleep latency (time between sleep onset and first REM period)	Decreased
REM density (number of eye movements per minute of REM sleep)	Increased
Distribution of REM sleep	Shifted toward beginning of sleep period

Quantitative EEG measures

Delta (0.5–4.0 Hz) activity, power	Decreased
Temporal distribution of delta activity	Shifted from first to second non-REM period (decreased delta ratio)

Note. REM=rapid eye movement.

Electroencephalogram Sleep Findings in Mania

- ⦿ It's difficult to study EEG sleep during acute manic episodes
- ⦿ Some studies showed:
 1. reduced total sleep time
 2. sleep continuity disturbance
 3. reduced REM sleep latency
 4. increased phasic REM activity.

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increased phasic REM activity.

- ⦿ Intentional sleep deprivation → short-lived improvement of depressive symptoms in 60% of patients (therapeutic effects)
- ⦿ Sleep deprivation + antidepressant drugs → more sustained remission
- ⦿ Conversely, sleep deprivation → precipitate mania/hypomania in bipolar patients.

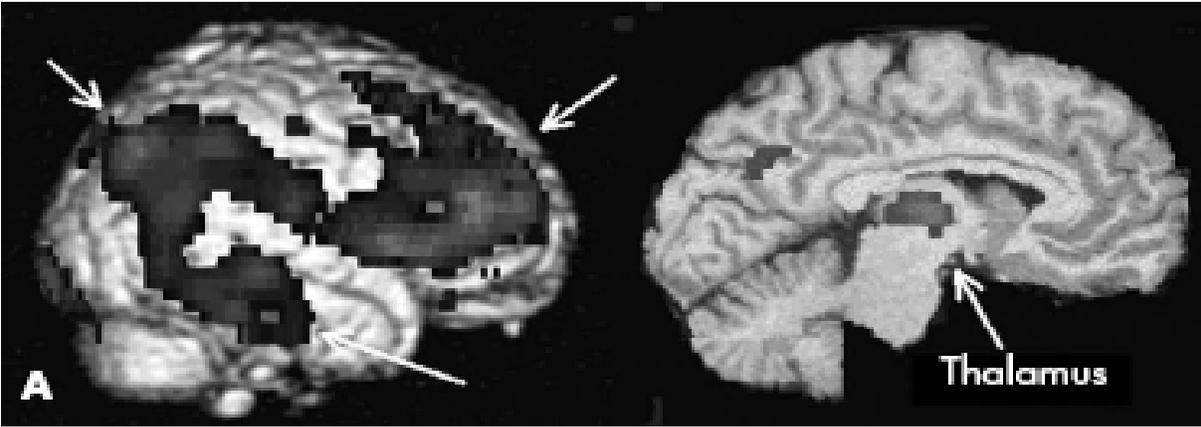
Theoretical Models of Sleep Disturbance in Depression

There're 3 sets of theories or hypothesis:

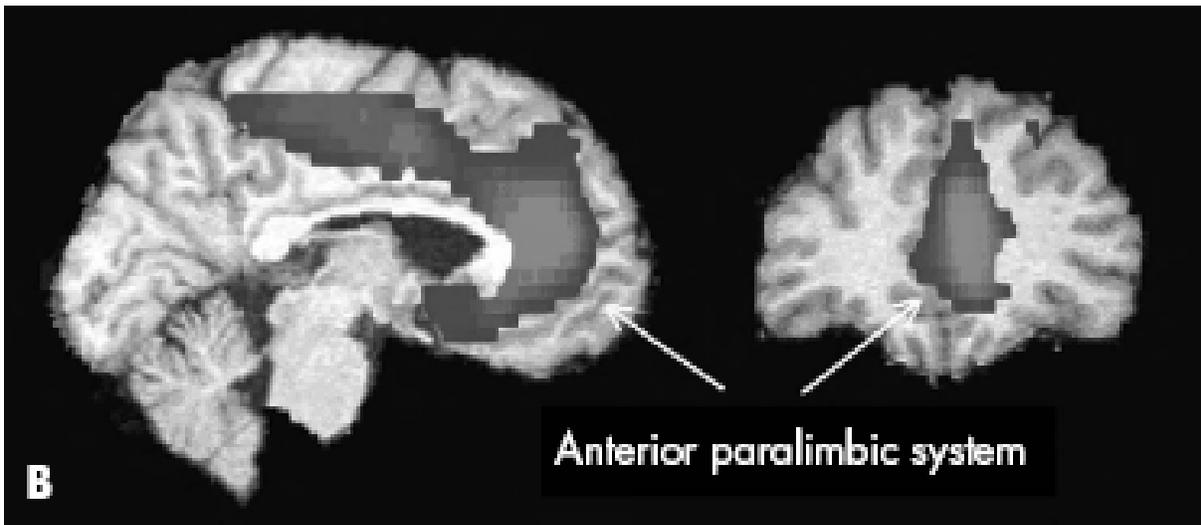
1. Sleep and mood disturbances in depression might result from abnormalities in biological rhythms
2. Sleep disturbance in depression is caused by a reduction in wake-dependent sleep drive
3. Neurochemical bases of REM and non-REM sleep and the relation to depression

Neurobiology of Sleep in Mood Disorders

- ⦿ Relative metabolism during non REM sleep in healthy subjects



Relative metabolism during REM sleep in healthy subjects



Therapeutic Implications of Sleep Disturbances in Mood Disorder

- Effects of Antidepressant Drugs on Sleep Symptoms and Electroencephalogram Sleep Findings

Drug	Sleep latency	Sleep continuity ^b	Stage 3/4 non-REM sleep amount (%)	REM sleep	Other
Tertiary tricyclic drugs					
Doxepin	↓	↑	↔	↓ Amount, % of REM	<i>All tricyclics:</i> ↓ Sleep apnea (minor effect) ↔ or ↑ Periodic limb movements ↑ Restless legs symptoms May induce eye movements during non-REM sleep
Amitriptyline	↓	↑	↔	↑ Phasic eye movements (REM density)	
Trimipramine	↓	↑	↔	↓ Amount, % of REM ↑ Phasic eye movements (REM density) ↔ Amount, % of REM	
Secondary tricyclic drugs					
Nortriptyline	↔	↑	↔	↓ Amount, % of REM	↑ Restless legs symptoms May induce eye movements during non-REM sleep ↓ Sleep apnea (minor effect)
Desipramine	↔	↔↓	↔	↑ Phasic eye movements (REM density)	
				↓ Amount, % of REM	
				↑ Phasic eye movements (REM density) ↔ Amount, % of REM	
SSRI	↔↑	↔↓	↔↓	↓	<i>SSRIs and venlafaxine:</i> ↑ Restless legs symptoms May induce eye movements during non-REM sleep
Venlafaxine	↔↑	↔↓	↔	↓	
Trazodone	↓	↔ to ↑	↑	↔ Amount, % of REM (↓ to ↑ in individual studies)	
Mirtazapine	↓	↑	↔	↔	
Bupropion	↑	↓	↔	↔	

Effects of Psychotherapy on Sleep Symptoms and Electroencephalogram Sleep Findings

- ⊙ Improved sleep following remission of depression
- ⊙ Psychotherapy + antidepressant → greater improvement

Treating Sleep Disturbances in Depression

- ⊙ Antidepressant medication alone
- ⊙ Psychotherapy alone
- ⊙ SSRI plus sedating antidepressant
- ⊙ SSRI plus other hypnotic agent

Treating Sleep Disturbances in Mania

- ⦿ Tx insomnia → priority in acute manic episode
- ⦿ Behavioral measures to stabilize sleep:
 - a) quiet environment with low levels of external stimulation (light, noise, social contact, activity options)
 - b) regular light-dark and sleep-wake schedule
 - c) “sleep hygiene” measures also include: reduction in use of caffeine and alcohol, restriction of strenuous physical activity shortly before bedtime, and limitation of daytime naps
- ⦿ Pharmacological tx:
 - a) Benzodiazepine (zolpidem, diazepam)
 - b) Sedating antipsychotic drugs (olanzapine, quetiapine)
 - c) Sedating mood stabilizer (lithium, lamotrigine, carbamazepine)

CONCLUSION

- ⦿ Insomnia is intimately related to the mood disorders
- ⦿ Insomnia and other sleep disturbances are risk factors for the new onset of depression
- ⦿ Direct manipulations of sleep have significant effects on mood symptoms
- ⦿ Sleep and mood regulatory systems appear to share many neurobiological features