Assessing and Managing Insomnia in Patients With Chronic Pain

Martin D. Cheatle, PhD

Disclosures

- Grants: Cordant Health Solutions

- This presentation does not contain off-label or investigational use of drugs or products
Learning Objectives

- Examine the reciprocal relationship between sleep disturbance and pain
- Describe the pros and cons of various pharmacologic agents for the treatment of sleep disorders in patients with chronic pain
- Explain the core principles of cognitive behavioral therapy for insomnia

Introduction

- Pain and Sleep Mechanisms of Action
- Assessment of Mood, Anxiety, and Sleep
- Treatment Approaches
  - Pharmacologic
  - Nonpharmacologic
- Conclusions
Case

- The patient is a 58-year-old man; BMI is 34 with history of chronic low back pain and concomitant sleep disorder, anxiety, and depression. Medication regimen includes oxycodone extended release 30 mg every 8 hours, hydrocodone 5 mg 2 tablets every 6 hours (175 mg MEDD), diazepam 5 mg every 8 hours, carisoprodol 350 mg 1 tablet every 4 hours.
Pain and Sleep Disorders

- Chronic pain is associated with multiple symptoms that may impair a patient’s quality of life, including emotional distress, fatigue, and sleep disturbance. In particular, there is a high prevalence of co-occurring pain and sleep disturbance.
- Studies have demonstrated that 50% of patients with a number of different chronic pain conditions complain of sleep disturbance, with estimates as high as 70%-88%.
- A number of studies have been conducted that support the hypothesis that sleep and pain are bidirectional.
- Evaluated 70 patients with chronic back pain and compared them to 70 gender and age-matched painfree controls, measuring sleep disturbance, pain, and a variety of psychological variables including health anxiety, depression.

- Results indicated that 53% of the patients with chronic pain demonstrated evidence of clinical insomnia with only 3% of the painfree controls meeting criteria for insomnia.

- Insomnia severity was associated with pain intensity, sensory pain ratings, affective pain ratings, general anxiety, general depression, and health anxiety.

- 159 patients undergoing evaluation at a pain management center were assessed for history of sleep disturbance.

- 79% of this cohort met criteria for significant insomnia based on self-reported symptoms.
Untreated or Undertreated Insomnia

Patients with chronic pain and sleep disturbance report:
- Increased pain
- Excessive fatigue
- Poorer mood
- Higher rates of disability

Cheatie M et al “Clinical and Genetic Characteristics of Opioid Addiction in Chronic Pain” 1RO1DA032776-01 NIH/NIDA unpublished data
Experimental Studies

Short term:
- Sleep deprivation or disruption increases pain & inflammation; dampen mood and pain inhibitory response

Long term:
- Development of depression, anxiety, widespread pain, diabetes, hypertension, CHD

Sleep Disturbance and Suicide

51 outpatients with noncancer chronic pain were recruited and completed the Pittsburgh Sleep Quality Index, the Beck Depression Inventory, and the Multi-Dimensional Pain Inventory. Subjects were classified as suicidal ideators or nonideators, based on the BDI.

Results indicated that 24% reported suicidal ideation and endorsed higher levels of sleep-onset insomnia, pain intensity, medication usage, pain related interference, affective distress, and depressive symptoms.

Stepwise, discriminate function analysis revealed that sleep onset insomnia severity and pain intensity predicted 84.3% of the cases.

Authors concluded that chronic pain patients who self-report severe and frequent initial insomnia with concomitant daytime dysfunction and high pain intensity were more likely to report passive suicidal ideation, independent of the effects of depression severity.

Pain and Sleep Are Bidirectional


Pain and Sleep: Mechanisms of Action

- Reduced pain tolerance
- Proinflammatory process
- Increased anxiety/lower mood
Sleep and pain sensitivity in adults

Borge Sivertsen1,2,4,6, Tea Laiukka1,2,6, Keith J. Patr1, Olaf Anna Steingrimsdottir3, Audun Stubhaug1,6, Christopher Sivert Nielson4

- Collected questionnaire data on chronic pain and sleep and assessed experimental pain sensitivity via cold pressure test in 10,000 adults in Norway
- Results revealed that insomnia frequency and severity, sleep onset problems, and sleep efficiency were associated with pain sensitivity
- Pain tolerance was reduced further, in a synergistic fashion in participants who reported both chronic pain and insomnia


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Cytokines, Inflammation and Pain

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Abstract

Cytokines are small secreted proteins released by cells have a specific effect on the interactions and communications between cells. Cytokine is a general name; other names include lymphokine (cytokines made by lymphocytes), monokine (cytokines made by monocytes), chemokine (cytokines with chemotactic activities), and interleukin (cytokines made by one leukocyte and acting on other leukocytes). Cytokines may act on the cells that secrete them (autocrine action), on nearby cells (paracrine action), or in some instances on distant cells (endocrine action). There are both pro-inflammatory cytokines and anti-inflammatory cytokines. There is significant evidence showing that certain cytokines/chemokines are involved in not only the initiation but also the persistence of pathologic pain by directly activating nociceptive sensory neurons. Certain inflammatory cytokines are also involved in nerve injury/inflammation-induced central sensitization, and are related to the development of contralateral hyperalgesia/allodynia. The discussion presented in this chapter describes several key pro-inflammatory cytokines/chemokines and anti-inflammatory cytokines, their relation with pathological pain in animals and human patients, and possible underlying mechanisms.
Gender and age-matched adults with CLBP or without chronic pain completed assessments of sleep quality in the past month and depressive symptoms in the past week, and provided a blood draw for IL-6.

Results revealed that subjects with CLBP had more sleep disturbance than controls. Circulating IL-6 levels were similar for the 2 groups; however, in adults with CLBP, poorer sleep quality was associated with higher IL-6 levels, and both sleep and IL-6 related to pain reports.

Authors concluded that inflammatory processes may play a significant role in cycles of pain and sleep disturbance.

Assessment of Mood, Anxiety, and Sleep
Mental Health Screening

- BDI-II
- BDI-FS
- Zung Self-Rating Depression Scale
- CES-D
- PHQ-9/PHQ-2
- BAI#
- GAD-7#
- HAS#
- HADS*
- POMS*
- PHQ-4*

#Anxiety Scales  *Anxiety/Depression Scales

PHQ-4

<table>
<thead>
<tr>
<th>Over the past few weeks have you been bothered by these problems?</th>
<th>Not at all</th>
<th>Several days</th>
<th>More days than not</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>Feeling nervous, anxious, or on edge</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Not being able to stop or control worrying</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Feeling down, depressed, or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>
### Generalised Anxiety Disorder Scale (GAD-7)

Over the last two weeks how often have you been bothered by any of the following problems? For each question, select the option that best describes the amount of time you felt that way.

<table>
<thead>
<tr>
<th>In last 2 weeks...</th>
<th>Not at all</th>
<th>Several days</th>
<th>More than half the days</th>
<th>Nearly every day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Feeling nervous, anxious or on edge</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>2. Not being able to stop worrying</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>3. Worrying too much about different things</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>4. Having trouble relaxing</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>5. Being so restless it is hard to sit still</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>6. Becoming easily annoyed or irritable</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
<tr>
<td>7. Feeling afraid as if something awful might happen</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
<td>☐</td>
</tr>
</tbody>
</table>
Sleep Assessment

- Sleep scales
- Sleep logs
- Actigraphy

Sleep Assessment Scales

<table>
<thead>
<tr>
<th>Questionnaire</th>
<th>Time frame</th>
<th># of items</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sleep quality</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pittsburg Sleep Quality Index</td>
<td>Past month</td>
<td>19</td>
</tr>
<tr>
<td>Sleep Questionnaire</td>
<td>Indefinite</td>
<td>59</td>
</tr>
<tr>
<td>Sleep Disturbance Questionnaire</td>
<td>Indefinite</td>
<td>12</td>
</tr>
<tr>
<td>SF-B</td>
<td>Past 2 weeks</td>
<td>12</td>
</tr>
<tr>
<td>Sleep onset</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Nocturnal Sleep Onset Scale</td>
<td>Past 2 weeks</td>
<td>2</td>
</tr>
<tr>
<td>General</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Steelman Insomnia Symptom Questionnaire</td>
<td>Past week</td>
<td>13</td>
</tr>
<tr>
<td>Athens Insomnia Scale</td>
<td>Past month</td>
<td>8</td>
</tr>
<tr>
<td>Pittsburgh Insomnia Rating Scale</td>
<td>Past week</td>
<td>65</td>
</tr>
<tr>
<td>Leeds Sleep Evaluation Questionnaire</td>
<td>Indefinite</td>
<td>10</td>
</tr>
</tbody>
</table>
Pittsburgh Sleep Quality Index

- PSQI consists of 19 individual items used to generate 7 composite scores:
  - Subjective sleep quality
  - Sleep latency
  - Sleep duration
  - Habitual sleep efficiency
  - Sleep disturbances
  - Use of sleeping medication
  - Daytime dysfunction

- 5 to 10 minutes to administer and score
- Global score can be used to identify presence of sleep disorder


Sleep Logs

<table>
<thead>
<tr>
<th>SLEEP DIARY</th>
<th>Day 1</th>
<th>Day 2</th>
<th>Day 3</th>
<th>Day 4</th>
<th>Day 5</th>
<th>Day 6</th>
<th>Day 7</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. What time did you go to bed (lights off)?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2. Approx how long did it take you to fall asleep?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3. How many times did you awaken during the night?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>4. Approx how long were you awake each time?</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
<td>4.</td>
<td>1.</td>
<td>2.</td>
<td>3.</td>
</tr>
<tr>
<td>5. What time did you wake in the morning?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>6. What time did you get out of bed?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>7. Approximately how many hours did you sleep?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>8. What medications did you take last night?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>9. Rate the quality of last night's sleep: (1 = excellent, 5 = poor)</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
<td>1 2 3 4 5</td>
</tr>
<tr>
<td>10. Avoided naps? (Y/N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11. Exercised? (Y/N), When?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12. Avoided stimulants? (Y/N)</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>13. Relaxed before bed? (Y/N), How long?</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Cognitive appraisal/comments: Please complete in the spaces provided below...

1. _______________(date)
2. _______________(date)
3. _______________(date)
4. _______________(date)
5. _______________(date)
6. _______________(date)
7. _______________(date)
Actigraphy

Risk Assessment for Sleep Disordered Breathing

- History and physical examination
  - Assess neck circumference
  - Evaluate throat and nose for restricted airway
- Obtain a urine drug test to detect nonprescribed benzodiazepines or other CNS depressants
- Administer EPWORTH Sleepiness Scale
- If patient is candidate for opioid therapy, consider a polysomnogram
  - Portable at home
  - In a sleep lab

THE EPWORTH SLEEPINESS SCALE
(To assess risk of Obstructive Sleep Apnea)

Use the following scale to choose the most appropriate number for each situation:

- 0 = would never doze
- 1 = Slight chance of dozing
- 2 = Moderate chance of dozing
- 3 = High chance of dozing

<table>
<thead>
<tr>
<th>Situation</th>
<th>Chance of dozing</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sitting and reading</td>
<td></td>
</tr>
<tr>
<td>Watching TV</td>
<td></td>
</tr>
<tr>
<td>Sitting, inactive in a public place (e.g. a theatre or a meeting)</td>
<td></td>
</tr>
<tr>
<td>As a passenger in a car for an hour without a break</td>
<td></td>
</tr>
<tr>
<td>Lying down to rest in the afternoon when circumstances permit</td>
<td></td>
</tr>
<tr>
<td>Sitting and talking to someone</td>
<td></td>
</tr>
<tr>
<td>Sitting quietly after a lunch without alcohol</td>
<td></td>
</tr>
<tr>
<td>In a car, while stopped for a few minutes in the traffic</td>
<td></td>
</tr>
<tr>
<td>Total</td>
<td></td>
</tr>
</tbody>
</table>

Score:
- 0-10 Normal range
- 10-12 Borderline
- 12-24 Abnormal

Treatment Approaches

- Pharmacologic

- CBT
Pharmacologic Approaches to Sleep Disorders

- Benzodiazepine and receptor agonists (BzRAS)
- Nonbenzodiazepine receptor agonists
- Melatonin receptor agonists
- Sedative antidepressants
- Atypical antipsychotic medications
- Antiepileptic drugs

Benzodiazepine and Receptor Agonists (BzRAS)

- BzRAS include benzodiazepines (example temazepam, triazolam) and a newer class of nonbenzodiazepine drugs (for example, zolpidem)
- This class of drugs binds to GABA-A receptors and induces sedative/hypnotic, amnestic, anxiolytic, and anticonvulsant effects
- Many short-term clinical trials show that BzRAS improve sleep quality, sleep latency, wakefulness after sleep onset, and total sleep time
- Most benzodiazepines (excluding triazolam) have intermediate to long half-life, helping patients fall asleep and stay asleep longer
Benzodiazepines

- FDA approved benzodiazepines for insomnia include temazepam, triazolam, estazolam, quazepam, and flurazepam

- Lorazepam, alprazolam, and clonazepam, which are typically used as anxiolytics, are also used off-label for sleep

- For patients with chronic pain, short-term benzodiazepines may be useful in muscle tension, anxiety, and neuropathic pain, as well as sleep

- One study found that with long term use (>1 year), pain patients using benzodiazepines had no improvement in sleep

Benzodiazepines (cont’d)

- Benzodiazepines may work well in short-term efficacy trials, but there is a paucity of data on long-term use and there are many documented adverse effects (cognitive impairment, decreased attention, anterograde amnesia)

- Long-term use of benzodiazepines may lead to a depressive symptomatology with cognitive and psychomotor slowing

- Abruptly discontinuing benzodiazepines may lead to rebound insomnia and there is always a concern of tolerance and dependence, especially in patients with a history of sedative or alcohol abuse

- Given these multiple safety concerns, benzodiazepines have fallen out of favor as a class of drugs for use in sleep disorders
Drug Misuse and Abuse


Most Common Drugs Involved in Overdoses in the US

- In 2013, there were 43,982 drug overdose deaths in the United States
  - 22,767 (51.8%) were related to pharmaceuticals
    - 16,235 (71.3%) involved opioid analgesics
    - 6,973 (30.6%) involved benzodiazepines
- People who died of drug overdoses often had a combination of benzodiazepines and opioids in their bodies
- In 2011, ~1.4 million ED visits involved nonmedical use of pharmaceuticals
  - 501,207 visits involved anti-anxiety and insomnia medications
  - 420,040 visits involved opioid analgesics

www.cdc.gov/homesafety/overdose/facts.html
Nonbenzodiazepine Receptor Agonists (NBzRAS)

- Nonbenzodiazepine receptor agonists including zolpidem, zalepon, and eszopiclone are the newest class of FDA approved hypnotics used for insomnia.

- These class of drugs improve sleep latency and have potential for fewer daytime side effects, given their short half-life and receptor binding profile.

- Zolpidem has become the most prescribed drug for insomnia and, as compared to benzodiazepines, in a double blind placebo controlled study it has shown to remain effective for 8 months of nightly use with no evidence of tolerance or rebound.

- Safety trials have demonstrated that there are side effects consisting of sleep eating, sleep walking and sleep driving.
Antidepressants

Sedative antidepressants, such as tricyclic antidepressants mirtazapine and trazodone, are useful in treating chronic pain patients with insomnia.

These classes of drugs help to relieve:
1. Insomnia
2. Any associated depression that negatively influences pain perception
3. The pain condition itself

Tricyclic antidepressants have pro-serotonergic, noradrenergic, dopaminergic, and sodium channel blocking effects that may account for their efficacy in pain and depression, along with anticholinergic and antihistaminic effects that lead to sedation.
**TCAs**

- At standard doses, all tricyclics have shown equal efficacy in treating neuropathic pain; however, they are not all equal in promoting sleep.

- Desipramine and imipramine are less sedating and may disrupt sleep.

- Amitriptyline, nortriptyline, trimipramine, and doxepin, on the other hand, may decrease sleep latency, increase sleep efficiency and increase total sleep time.

**TCAs (cont’d)**

- *Amitriptyline* is probably the best studied TCA for improving sleep in patients with comorbid pain, especially headache, fibromyalgia, and neuropathic pain. However, it may be poorly tolerated due to anticholinergic side effects.

- *Nortriptyline*, a metabolite of amitriptyline, is a slightly less sedating but may also have less side effects, including less daytime drowsiness.

- *Doxepin*, the only tricyclic antidepressant approved by the FDA for the treatment of insomnia, has a hypnotic dose of 1-6 mg as opposed to 150-300 mg when used as an antidepressant.
**Trazodone**

- Trazodone is an antagonistic of serotonin type II, histamine and alpha 1 adrenergic receptors and weakly inhibits serotonin reuptake.

- Trazodone exerts most of its hypnotic effects at low doses and works as an antidepressant at higher doses.

- There is some evidence for adjunctive effect when used with pregabalin for pain patients.

**Mirtazapine**

- Mirtazapine is an antidepressant with sedating qualities due to antagonism of type I histaminergic and serotonin type II receptors.

- At doses 15-30 mg it improves sleep latency, total sleep time and sleep efficiency, and decreases frequency of awakenings. It has also been shown to improve sleep, appetite, and mood in cancer patients.
Melatonin Receptor Agonists

- Melatonin receptor agonists include the natural ligand, melatonin, as well as nonmelatonin drugs (ramelteon and agomelatine)

- Melatonin has been shown to induce sleep by attenuating the wake-promoting impulses in the hippocampus

- Melatonin is available over the counter and is not FDA approved

- In 2005 the FDA approved ramelteon, which is a melatonin receptor agonist, for the treatment of sleep initiation insomnia

Antipsychotics

- Two of the newer, atypical antipsychotic medications, quetiapine and olanzapine, have been used off-label for treatment of insomnia

- Self-reported outcomes and polysomnographic data suggests efficacy in increased total sleep time, slow wave restorative sleep, and decreasing sleep latency

- At low doses, quetiapine primarily has antihistaminergic properties and is weakly pro-serotonergic

- It has been known to decrease anxiety and serve as an adjunctive to antidepressant medication

- These medications may cause significant weight gain and cardiac conduction abnormalities, such as prolonged QT interval, and a low risk of movement disorders, such as tardive dyskinesia
AEDs

- Gabapentin and pregabalin often used to treat chronic pain conditions with comorbid insomnia
- In multiple studies of patients with neuropathic pain and fibromyalgia, self-reported sleep outcomes suggest positive effects on sleep latency and wakefulness after sleep onset, as well as increased deep sleep
- Both have adjunctive effects on depression and anxiety
- Pregabalin showed increased efficacy in promoting sleep in patients with diabetic neuropathy, compared to amitriptyline in a recent study
- Adverse effects include dizziness, next day sedation, GI symptoms and peripheral edema

Over-the-Counter Medications

- Most of the OTC aids contain first generation antihistamines (diphenhydramine and doxylamine)
- Patients may quickly develop tolerance to these agents
- There are no controlled studies demonstrating efficacy for >3 weeks in treatment with insomnia
- Antihistamines may cause next-day sedation and impaired cognitive function and should be used with caution in the elderly
Clinical Considerations

There is robust literature that there is a high prevalence of SI in patients with pain ranging from 18% to >50%.


A systematic review by Tang and Crane revealed that the risk of successful suicide was doubled in patients with CP as compared to nonpain controls.

Results were conflicting and inconsistent regarding increased risk of suicide with Rx of AEDs possibly due to variability in research designs, controls, comparison groups, and sample size and measures of SI/SB.

Authors concluded that in spite of the limitations, the literature reviewed suggests that the risk of suicidality should be assessed in patients with neuropathic pain, fibromyalgia, or other pain conditions being considered for AED therapy.

The FDA expanded warnings of increased risk of SI/SB for all antidepressants.

In the studies reviewed there were no differences between antidepressants and risk of SI/SB.

Results of studies reviewed were inconsistent and conflicting due to methodological limitations and variability between studies.

Authors concluded that assessment of risk for SI/SB should be standard practice in pain population especially patients initiating antidepressant therapy and in patients between the ages of 18-25.
Cognitive Behavioral Therapy

CBT focuses on maladaptive thought patterns (catastrophizing) and behaviors (kinesiophobia) that occur frequently in patients with CNCP.

The objective of CBT is to guide the patient in recognizing and reconceptualizing his/her personal view of pain, identifying their role in the process of healing, and promoting the patient being proactive rather than passive, and competent rather than incompetent.

CBT include specific skill acquisition (relaxation therapy, stress management, cognitive restructuring) followed by skill consolidation and rehearsal, and relapse training (Turk, Flor, 2006).
CBT (cont’d)

- CBT has been found to be efficacious for a number of chronic pain disorders including:
  - Arthritis (Keefe & Caldwell, 1997)
  - Sickle cell disease (Chen et al, 2004)
  - Chronic low back pain (Lamb et al, 2010; Glombiewski et al, 2010)
  - TMJ (Turner et al, 2006)
  - Lupus (Greco et al, 2004)
  - Pain in breast cancer patients (Tatrow et al, 2006)
Efficacy/Effectiveness

- Objective: To evaluate the effectiveness of psychological therapies for chronic pain (excluding headache) in adults, compared with treatment as usual, waiting list control, or placebo control, for pain, disability, mood, and catastrophic thinking.
- Data collection and analysis: 42 studies met our criteria and 35 (4788 participants) provided data. 2 authors rated all studies.
- Main results: CBT is effective in altering mood and catastrophizing outcomes, when compared with treatment as usual/waiting list, with evidence that this is maintained at 6 months.
- Authors’ Conclusions: CBT is a useful approach to the management of chronic pain.

Cognitive Behavioral Therapy for Insomnia

- CBT-I has been demonstrated to be equally effective or even superior to pharmacotherapy in patients with chronic primary insomnia.
CBT-I (cont’d)

- CBT-I consists of:
  - Psychoeducation about sleep and insomnia
  - Stimulus control
  - Sleep restriction
  - Sleep hygiene
  - Relaxation training
  - Cognitive restructuring

Stimulus Control

- Stimulus control strengthens the patient’s association of the bed with rapid-onset sleep by:
  - Teaching the patient to limit the use of bed to sex and sleep
  - Avoid daytime naps
  - Maintain a regular sleep/wake time
  - Go to bed only when sleepy
  - Get out of bed if not asleep within 15 to 20 minutes
Sleep Restriction

- Sleep restriction limits the amount of time a patient spends in bed to the actual time asleep, so for example:
  - If a patient spends 8 hours in bed but only 4 hours total asleep, they would be instructed to only spend 4 hours in bed
  - This leads initially to a mild sleep deprivation that increases the patient’s drive to sleep and leads to more consolidated, restful sleep and greater sleep efficiency
  - Over time, as sleep efficiency improves, the patient gradually increases time in bed

Sleep hygiene increases patients’ awareness of behavior and environmental factors that impact sleep including:

- Caffeine, alcohol, certain foods
- Timing of intense exercise
- Bright lights and use of computers and tablets before bed may
- Benefits of a restful bedroom environment
Relaxation Training

- Relaxation training reduces cognitive and physical tension close to bedtime, and involves techniques such as hypnosis, meditation, and guided imagery.

Cognitive Therapy

- Cognitive therapy helps patients explore how beliefs and attitudes towards sleep affect sleep behaviors.
- Patients learn to identify maladaptive or distorted thoughts, and replace them with more adaptive substitutes, thereby helping to alleviate worrying or rumination about insomnia.
This was a parallel-group, randomized, single blind trial of CBT-I with a contact/measurement control condition

- 28 subjects with chronic neck and back pain were randomized into the 2 groups

- Results revealed that patients who received CBT-I had significantly improved sleep and these patients maintained a statistically and clinically improved total sleep time even 6 months after treatment ended, despite the persistence of moderate to severe pain


- An RCT design comparing a hybrid CBT P-I to a monitoring control group

  - Compared to symptom monitoring, the hybrid intervention was associated with greater improvement in sleep at post-treatment. Although pain intensity did not change, the hybrid group reported greater reductions in pain interference, fatigue, and depression than the monitoring group. Changes associated with the hybrid intervention were clinically significant and durable at 1- and 6-month follow-ups
Access Issues

Interventions

- Office-based interventions
  - Antidepressant therapy/pain self-management program
    Kroenke et al 2009

- E-health
  - Computer-assisted CBT
  - Telemedicine
  - Smartphone apps
Conclusions

- Sleep disturbance is common in patients with CNCP but is frequently not assessed or treated
- Untreated sleep disturbance can cause additional suffering (physical and emotional) and impact QOL in the individual with chronic pain
- Effective management of sleep can result in opioid sparing
- Only a comprehensive approach to assessment, monitoring, and treatment will effectively manage sleep disturbance
- Access to efficacious therapeutics needs to be addressed and nontraditional delivery systems further developed

Case

- The patient is a 58-year-old man; BMI is 34 with history of chronic low back pain and concomitant sleep disorder, anxiety, and depression. Medication regimen includes oxycodone extended release 30 mg every 8 hours, hydrocodone 5 mg 2 tablets every 6 hours (175 mg MEDD), diazepam 5 mg every 8 hours, carisoprodol 350 mg 1 tablet every 4 hours

- The PCP initially:
  1. Reduces his opioid regimen to ≤90 mg MEDD
  2. Refers the patient to physical therapy
  3. Discontinues diazepam/carisoprodol and prescribes sertraline/trazodone
  4. Orders a sleep study
  5. All the above
  6. 1, 3, 4
THANK YOU!!

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