Handbook of Pain Management for Non-Cancer Patients with Suspected Substance Use Disorders

(Public Version)

衛生福利部
食品藥物管理署
Taiwan Food and Drug Administration

Preface

Substance use disorder and drug addiction are chronic diseases prone to relapse. Providing medical care for patients with suspected substance use disorder who also suffer from non-cancer chronic pain is challenging. However, with appropriate care, substance use disorder can be treated, and pain can be alleviated.

To effectively address the pain issues of these patients and maintain their function and quality of life, the Taiwan Food and Drug Administration has commissioned Chi Mei medical center. Experts and scholars from various fields, including pain management, anesthesiology, palliative medicine, rehabilitation, psychiatry, addiction prevention, preventive medicine, gastroenterology, surgery, radiology, pharmacy, and nursing, were invited to jointly compile this handbook. The handbook covers various topics in chapters, including an introduction to the medical treatment of substance use disorders, assessment methods, care goals and strategies, common pain relief methods, pharmacological and non-pharmacological treatments, patient self-care, an introduction to lifestyle medicine, and education for caregivers.

We hope that this manual will serve as a valuable reference for patients with suspected substance use disorder and non-cancer chronic pain, as well as their caregivers, to help alleviate pain appropriately, improve functionality and quality of life, and enhance medication safety.

Director-General of Taiwan Food and Drug Administration,
Ministry of Health and Welfare

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Chapter 1

Introduction of Medical Diagnosis and Treatment of Substance Use Disorders

1. Introduction

Substance use disorder and drug addiction are often used interchangeably with terms like substance dependence. In reality, it is a chronic and relapsing disease characterized by three main features:

1.1. Compulsive behavior: Persistent behaviors focused on seeking and using substances.

1.2. Loss of control: An inability to regulate substance use.

1.3. Negative emotions: The emergence of irritability, anxiety, or other negative emotions when substances are unavailable.

The root of this disorder lies in impulsivity and compulsivity, which are closely tied to the brain's reward system. Beyond

neurobiological factors, substance use disorder is also influenced by psychological, social, environmental, and cultural factors, reflecting its complexity. As a result, treating substance use disorder requires a comprehensive approach that integrates psychological and social assessments and interventions. Only by thoroughly understanding the full scope of the issue can we provide holistic treatment plans and resources to help patients achieve effective recovery.

2. Assessment and medical diagnosis of patients with substance use disorders

The primary goals of assessment include:

2.1. Identifying the pattern and severity of substance use, as well as the patient's motivation for change.

2.2. Detecting any substance-related disorders.

2.3. Determining the presence of other psychiatric or medical conditions to develop an appropriate treatment plan.

(1) Substance use history

Gather detailed information about the patient's current substance use, including legal substances (e.g., caffeine, tobacco, betel nut, alcohol, sedatives, sleeping pills, cough syrup) and illicit addictive substances (e.g., heroin, amphetamine/methamphetamine, ketamine, ecstasy, cannabis, drug-laced coffee, nitrous oxide). A comprehensive substance use history should include past experiences, such as: The motivation, timing, location, and context of first use. The mental and physical effects of the substance.

(2) Medical diagnosis of substance-related disorders

Substance Use Disorder is defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and encompasses dependence on drugs or chemicals. The disorder is classified into three severity levels based on the number of clinical symptoms: Mild: Presence of 2–3 symptoms. Moderate: Presence of 4–5 symptoms. Severe: Presence of 6 or more symptoms.

The diagnosis requires meeting at least 2 of the following criteria within a 12-month period:

1. Excessive Use: Consuming the substance in larger amounts or for longer durations than intended.
2. Inability to Control Use: Persistent desire or unsuccessful efforts to cut down or control substance use.
3. Time Consumption: Spending a significant amount of time obtaining, using, or recovering from the substance's effects.
4. Craving: Experiencing strong desires or urges to use the substance.
5. Role Failure: Repeated substance use leads to an inability to fulfill work, family, or school responsibilities.
6. Interpersonal Problems: Continued use despite persistent or recurrent social or interpersonal difficulties caused by substance use.
7. Activity Reduction: Giving up or reducing important social, occupational, or recreational activities due to substance use.
8. Risky Use: Repeated use of the substance in situations where it poses physical danger.

9. Health Deterioration: Continued use despite awareness that the substance is causing or worsening physical or psychological problems.
10. Tolerance: Needing increased amounts of the substance to achieve the same effect or experiencing diminished effects with the same amount.
11. Withdrawal Symptoms: Experiencing physical or psychological withdrawal symptoms after stopping substance use.

Note: Criteria 10 (tolerance) and 11 (withdrawal symptoms) are not counted toward diagnosis if they result from appropriate use of prescribed medications.

(3) Treatment history of substance use disorder

Review the patient's past treatment experiences, including hospitalizations, outpatient care, and participation in treatment programs (e.g., medication therapy, psychotherapy, family therapy, support groups), as well as their effectiveness. This information is valuable for planning and adjusting future treatment.

(4) Psychiatric history

Substance use disorder often co-occurs with mental illnesses, and dual treatment can enhance outcomes. It is crucial to clarify the sequence of substance use and the emergence of psychiatric symptoms to ensure targeted intervention.

(5) Medical and surgical history

Since substance use may increase the risk of physical illnesses, a detailed history of the patient's medical conditions, hospitalizations, and surgeries should be obtained. The relationship between these illnesses and substance use should also be explored.

(6) Family history

A family history of substance use disorder may affect the patient's risk and treatment outcomes. Understanding family members' responses to past treatments can help predict the patient's therapeutic results.

(7) Social history

Assess the patient's living conditions (e.g., housing, employment status), family support, and social network. These factors help to understand the context of substance use and the risks of continued use.

(8) Physical and mental status examination

Conduct routine physical and mental examinations to rule out or confirm underlying medical and psychiatric issues.

(9) Laboratory tests

Laboratory tests provide objective data, including: Urine drug screens, blood alcohol levels, substance metabolites, associated biological effects (e.g., liver function tests).

3. Introduction to substance use disorder treatment

Given the complexity of substance use disorder, treatment decisions must be tailored to the patient's level of substance use, co-occurring substance addictions, medical and legal issues, family and social relationships, and accessibility to treatment. Below is a brief introduction to common addiction treatment methods:

3.1. Medication therapy

(1) Maintenance therapy

Suitable for patients addicted to opioid substances (e.g., heroin). Long-term use of methadone or buprenorphine can effectively reduce withdrawal symptoms and cravings, enabling patients to resume normal work. Maintenance therapy also lowers risks associated with intravenous drug use (e.g., HIV transmission) and increases patients' willingness to seek treatment for other conditions.

(2) Antagonist therapy

Uses antagonists to block the effects of addictive substances (e.g., opioids). Even if patients use the substance during treatment, they will not experience euphoria, facilitating their reintegration into normal life.

(3) Treatment of co-occurring disorders

Many patients with substance use disorders also suffer from mental illnesses (e.g., mood disorders, anxiety disorders). Effective treatment of these conditions not only improves psychological well-being but also reduces the need for addictive substances.

3.2. Non-pharmacological treatments

(1) Motivational interviewing

Through collaborative conversations, this method helps patients explore internal conflicts. Therapists adopt an attitude of acceptance and empathy, enabling patients to feel understood. Gradually, it fosters their commitment to resolving ambivalence and achieving change.

(2) Cognitive behavioral therapy (CBT)

Analyzes the context of substance use, including thoughts, feelings, environments, and consequences before and after use. Identifies high-risk situations and employs behavioral and cognitive strategies to manage cravings, avoid risky situations, and develop skills to refuse substances.

(3) Contingency management

Utilizes rewards (e.g., gifts, vouchers, continued treatment opportunities, or praise) to encourage patients to achieve specific goals, such as complete abstinence, reinforcing positive behaviors.

(4) Couples and family therapy

Approaches substance use issues within the context of family interactions, analyzing patterns of interaction among members. Intervenes in dysfunctional family relationships to enhance family support and treatment outcomes.

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Chapter 2

Overview of Pain Management in Patients Suspected of Substance Use Disorder

1. Introduction

1.1. Scope of pain

This chapter addresses both acute pain and non-cancer chronic pain.

1.2. Definition of non-cancer chronic pain

Non-cancer chronic pain refers to pain that is not caused by cancer and persists for more than three months. It often has complex origins, which may include:

(1) Somatic or visceral injury

(2) Nervous system damage

Subsequent interactions among various factors lead to the persistence of pain, ultimately resulting in chronic pain.

1.3. Challenges in medical care

For patients with suspected substance use disorders (hereafter referred to as "these patients"), managing coexisting non-cancer chronic pain poses significant challenges. Treatment models are primarily based on the chronic pain management guidelines published by the U.S. Department of Veterans Affairs in 2017 (see Table 1).

1.4. Treatment goals

The treatment goals for these patients include:

(1) Stabilizing symptoms of substance use disorders.

(2) Providing appropriate pain relief.

(3) Improving functional capacity and quality of life.

Table 1: Stepwise model for chronic pain management

The treatment of chronic pain is divided into four levels based on the complexity of the condition:
Stage 1: Self-management Patients engage in self-directed pain management strategies, such as: Self-rehabilitation/exercise. Stress-relief activities (e.g., yoga, tai chi, mindfulness). Self-care for pain-related comorbidities (e.g., chronic disease self-management).
Stage 2: Non-pharmacological treatment Building upon self-management, healthcare providers offer non-pharmacological treatments, such as: Rehabilitation therapy. Psychiatric consultations and psychotherapy. Other non-invasive treatment methods.

Stage 3: Non-opioid pharmacological treatment

In addition to the second step, healthcare providers introduce non-opioid medications, including: Antidepressants. Anticonvulsants. Other analgesics.

Stage 4: Multidisciplinary intervention and cautious use of opioids

Building upon the third step, a multidisciplinary team addresses pain-related factors, including: Interventional treatments (e.g., nerve blocks, surgery).

In exceptional cases, opioids may be used intermittently if the benefits outweigh the risks of addiction, following thorough evaluation.

Note:
This stepwise treatment model, published by the U.S. Department of Veterans Affairs in 2017, is currently the most up-to-date and internationally recognized model for chronic pain management. Core Principles: Regardless of the stage, patients are encouraged to actively manage their pain and related comorbidities and to participate in treatment proactively. Opioid use is reserved as a last resort, to be used cautiously and intermittently after rigorous assessment.

2. Glossary

2.1. Addiction

Addiction refers to an uncontrollable craving and repeated use of a substance or engagement in a behavior, even when it causes physical or psychological harm. The development of addiction involves multiple factors that interact with one another, including:

(1) Genetics

(2) Brain function

(3) Environment

(4) Life experiences

Currently, substance abuse/misuse and addiction have been unified under the term "Substance Use Disorder" internationally. Details are provided in Table 2.

Table 2. Medical diagnosis of substance-related disorders

Substance Use Disorder is defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and encompasses dependence on drugs or chemicals. The disorder is classified into three severity levels based on the number of clinical symptoms: Mild: Presence of 2–3 symptoms. Moderate: Presence of 4–5 symptoms. Severe: Presence of 6 or more symptoms.
The diagnosis requires meeting at least 2 of the following criteria within a 12-month period: 1. Excessive Use: Consuming the substance in larger amounts or for longer durations than intended. 2. Inability to Control Use: Persistent desire or unsuccessful efforts to cut down or control substance use. 3. Time Consumption: Spending a significant amount of time obtaining, using, or recovering from the substance's effects. 4. Craving: Experiencing strong desires or urges to use the substance. 5. Role Failure: Repeated substance use leads to an inability to fulfill work, family, or school responsibilities.

6. Interpersonal Problems: Continued use despite persistent or recurrent social or interpersonal difficulties caused by substance use.
7. Activity Reduction: Giving up or reducing important social, occupational, or recreational activities due to substance use.
8. Risky Use: Repeated use of the substance in situations where it poses physical danger.
9. Health Deterioration: Continued use despite awareness that the substance is causing or worsening physical or psychological problems.
10. Tolerance: Needing increased amounts of the substance to achieve the same effect or experiencing diminished effects with the same amount.
11. Withdrawal Symptoms: Experiencing physical or psychological withdrawal symptoms after stopping substance use.

Note:
Criteria 10 (tolerance) and 11 (withdrawal symptoms) are not counted toward diagnosis if they result from appropriate use of prescribed medications.

2.2. Opioid use disorder

(1) Definition:

Opioid use disorder is a subtype of substance use disorder, in which the misused or abused substance is an opioid.

(2) Characteristics:

It is a chronic brain disease. Long-term use of opioids can lead to the development of this disorder in anyone.

(3) Treatment and management:

Patients with opioid use disorder can effectively manage their condition through appropriate treatment, with the potential for adequate pain relief.

2.3. Medications for maintenance therapy

(1) Characteristics of maintenance therapy medications:

Maintenance therapy medications, also referred to as substitution therapy, are used in addiction treatment and require regular, repeated use. Key features include:

- Reducing the euphoria and sedative effects of opioids.
- Decreasing cravings for opioids.
- Alleviating and preventing withdrawal symptoms.
- Allowing patients to participate in social activities without impairment.
- Requiring less frequent dosing throughout the day.

(2) Common maintenance therapy medications:

- Methadone (commonly available as an oral solution in Taiwan).
- Buprenorphine (often used in combination formulations, such as buprenorphine/naloxone).

3. Common comorbidities in patients with opioid use disorder

Patients with opioid use disorder often present with comorbid conditions that may involve psychological, substance misuse, or physical health issues. These are categorized as follows:

3.1. Psychological/psychiatric comorbidities

(1) Anxiety disorders

(2) Depression

(3) Personality disorders

(4) Conduct disorders

(5) Attention-deficit/hyperactivity disorder (ADHD)

(6) Eating disorders

(7) Post-traumatic stress disorder (PTSD)

3.2. Other substances commonly misused

(1) Alcohol

(2) Tobacco

(3) Stimulants

(4) Cannabis

(5) Hallucinogens

(6) Ketamine

(7) Others

3.3. Physical comorbidities

(1) HIV/AIDS

(2) Sexually transmitted diseases

(3) Cardiovascular diseases (e.g., endocarditis)

(4) Pulmonary diseases (e.g., tuberculosis)

(5) Liver diseases (e.g., hepatitis, particularly hepatitis C, or cirrhosis)

(6) Gastrointestinal disorders (e.g., peptic ulcers)

(7) Other conditions (e.g., cellulitis, abscesses, sepsis)

4. Medical management of acute pain in patients with opioid use disorder

Managing acute pain in patients with opioid use disorder requires careful consideration of their medication history and potential tolerance. The following are recommended approaches:

4.1. Mild to moderate pain

(1) Addressing muscle spasms

Consider medications to relieve muscle spasms and alleviate pain.

(2) Addressing pain exacerbated by anxiety

If anxiety intensifies the perception of pain, consider using anti-anxiety medications.

(3) Adjunctive therapies

Combine with pain-relief adjunctive therapies, such as: Local massage, acupuncture, trigger point injections with local anesthetics (e.g., pain blockade).

(4) Prioritizing non-opioid analgesics

Recommended non-opioid options include: Nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, local analgesic patches.

(5) Consideration of opioid analgesics when necessary

If the above methods fail to provide adequate relief (e.g., for moderate pain), consider using opioid analgesics. Adjust dosages carefully to ensure effective pain relief within the therapeutic range.

4.2. Severe pain

(1) Adding opioid analgesics

- If the patient remains in severe pain after initial treatment and treatable conditions have been ruled out, consider adding opioids for pain relief.
- Be aware that patients with a history of long-term use of oral methadone solution or sublingual buprenorphine/naloxone tablets may have developed tolerance, requiring adjusted dosages for effective relief.
- Post-administration evaluations should include: Pain relief assessment. Monitoring for medication side effects.

(2) Further evaluation of pain causes

If pain relief is inadequate, reassess the patient's condition to identify underlying causes of pain and administer targeted treatments.

5. Basic medical care model for patients with non-cancer chronic pain and opioid use disorder

For patients with opioid use disorder who also suffer from non-cancer chronic pain, a holistic health care model should be adopted. This model emphasizes a comprehensive understanding of the causes of pain, the provision of appropriate treatments, and the pursuit of necessary support, integrating care from the physical, psychological, and social perspectives.

5.1. Physical care

(1) Examination and diagnosis

Conduct necessary tests and examinations to determine the cause of the pain.

(2) Chronic disease management

Provide appropriate treatment recommendations and services, particularly for pain-related injuries and pre-existing chronic conditions (e.g., respiratory or cardiovascular diseases).

(3) Pain management

Implement pain management strategies, including pharmacological and non-pharmacological treatments.

(4) Continuous care

Ensure consistent and professional medical care for patients with opioid use disorder.

5.2. Psychological care

(1) Treatment of psychiatric comorbidities

Offer professional care for comorbid conditions such as anxiety, depression, and sleep disorders.

(2) Enhancing treatment motivation

Help patients strengthen their proactive participation in disease prevention and treatment, boosting their confidence in recovery.

(3) Emotional and spiritual support

Provide mental, emotional, and spiritual care to foster positive emotions and inner peace.

5.3. Social care (interpersonal support)

(1) Social skills training

Assist patients in developing appropriate social skills, rebuilding stable interpersonal relationships, and enhancing family and social support (e.g., harmonious interactions and mutual support with family, friends, and colleagues).

(2) Linking community resources

Arrange community care resources for post-discharge support, particularly for opioid use disorder patients, to establish a long-term support system.

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Chapter 3
Assessment of Pain

1. Introduction

1.1. Introduction to substance use disorder

Substance use disorder, commonly referred to as drug addiction, is closely related to substance abuse/misuse and addiction. Frequently abused or misused substances include:

(1) Sedatives/hypnotics

(2) Alcohol

(3) Opioids

(4) Illicit drugs

1.2. Opioid use disorder

Opioid use disorder is a subtype of substance use disorder, involving the misuse or abuse of opioids.

1.3. Special care requirements

For patients with opioid use disorder (hereafter referred to as "these patients"), appropriate assessment, diagnosis, and treatment are essential when managing acute or chronic pain. Proper care helps prevent relapse due to cravings for analgesics.

1.4. Principles of pain assessment

Pain assessment should adhere to the following principles:

(1) Patient's self-report

Allow patients to describe their pain in their own words.

(2) In-depth understanding

Confirm the specifics of the patient's pain description.

(3) Identify causes

Determine the cause of the pain and maintain a complete pain record.

(4) Identify risk factors for chronic pain

Common risk factors include:

- Physical factors

Patients with opioid use disorder often have physical comorbidities, such as:

☆ HIV/AIDS

☆ Hepatitis

☆ Liver cirrhosis

☆ Tuberculosis

☆ Endocarditis

☆ Cellulitis

☆ Abscesses

☆ Chronic pain

- Psychological factors

Common psychiatric comorbidities include:

☆ Anxiety disorders

☆ Depression

☆ Personality disorders

☆ Post-traumatic stress disorder (PTSD)

- Lack of social support

Common social support issues include:

☆ Lack of stable housing.

☆ Absence of care and support from family or friends.

☆ History of violent conflicts with others.

2. Understanding pain

Pain can be categorized into acute and chronic pain, each with different classifications and mechanisms. Detailed explanations are provided below:

2.1. Classification of acute pain

(1) Classification by location

- Somatic pain: Pain originating from the skin, muscles, or bones.
- Visceral pain: Pain originating from internal organs.

(2) Classification by cause

- Nociceptive pain: Caused by tissue damage, such as pain from injuries or post-surgical pain.
- Inflammatory pain: Caused by inflammatory responses, such as arthritis or pain from infections.

2.2. Factors contributing to chronic pain

The development of chronic pain often involves multiple factors, categorized into three main areas:

(1) Physiological/physical factors

- Persistent injury: Unhealed injuries or pain leading to central nervous system sensitization.
- Nerve damage: Includes peripheral or central nervous system injuries.
- Improper opioid use: Long-term misuse of opioids can contribute to chronic pain.

(2) Psychological/mental factors

- Psychiatric comorbidities: Such as anxiety disorders, depression, sleep disorders, and substance use disorders (including sedatives, alcohol, opioids, and illicit drugs).
- Past pain experiences: Especially those related to opioid withdrawal, or negative emotional responses to pain (e.g., violent tendencies or agitated personality).

(3) Social/interpersonal support factors

- Lack of support systems: Insufficient support from family, finances, or friends.
- Unstable living environment: Such as job loss or lack of housing.

3. Precautions before pain assessment

When conducting a pain assessment, it is essential to consider the patient's specific circumstances and needs. The following precautions should be observed:

3.1. Privacy and attitude

Respect the patient's privacy during interviews and examinations. Communicate in a supportive, friendly, and non-judgmental manner to create a reassuring environment.

3.2. Tolerance assessment

Evaluate whether the patient has developed tolerance to opioids to adjust the treatment strategy accordingly.

3.3. Opioid-induced pain

Confirm if the patient is experiencing opioid-induced pain (e.g., increased pain following opioid use). This is particularly important to assess in patients with headaches.

3.4. Withdrawal syndrome assessment

Check for symptoms of withdrawal syndrome (refer to Chapter 5, Section 3 on Dependence) to address related issues promptly.

4. Chronic pain assessment

Assessing chronic pain requires a multidimensional approach, typically encompassing the following five aspects (4.1.-4.5.):

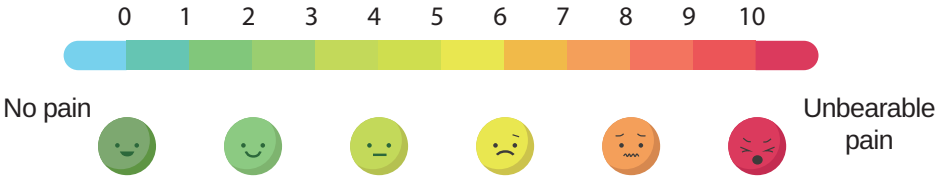
4.1. Evaluation of pain characteristics

The OPQRST method can be used to systematically analyze the patient's pain profile. Detailed explanations are provided below:

Pain Characteristic	Description
Onset	When did the pain start? How long does each episode last? How frequently does the pain occur?
Provoking / Palliating	What factors trigger the pain? What factors relieve the pain? What circumstances make the pain worse?
Quality	How does the pain feel? Examples: sharp, dull, stabbing, burning, crushing, etc.
Region / Radiation	Where is the pain located? Does the pain radiate to other areas?
Severity	Common assessment tools: 1. Numeric Rating Scale (Figure 1): Patients rate pain severity on a scale of 0–10, where 0 = no pain and 10 = unbearable pain. 2. Other scales based on patient condition: - Multidimensional pain assessment forms - Scales for cognitively impaired patients - Scales for patients on ventilators - Pediatric-specific pain scales
Treatment	What pain treatments has the patient received in the past? Examples: herbal medicine, folk remedies, massage, acupuncture, medications, or other therapies. What were the outcomes of these treatments? Did any side effects occur?

Note:
This evaluation method helps healthcare providers gain a comprehensive understanding of the patient's pain profile to develop an appropriate treatment plan. For additional references, see Extended Reading 9

Figure 1. Assessment of pain severity (numerical scale, with relieve 10 points)



Note: The assessed items may include: at rest, during activity, at worst pain, at least pain, after medication, and after treatment; it is also possible to evaluate the overall average within a day.

4.2. Reviewing medical history

A comprehensive review of the patient's medical history helps identify the source of pain and the patient's overall health status. Key points include:

(1) Pain history

- Location of pain: Where is the primary location of the pain?
- Trauma: Is the pain caused by an injury?
- Previous interventions:
- Has the patient undergone any surgeries?
- What treatments have been received (e.g., rehabilitation, nerve blocks, analgesics)?

(2) Comorbidities

Does the patient have other medical conditions? Examples include:

- Hypertension
- Diabetes
- Stroke
- Heart disease
- Pulmonary diseases

4.3. Assessment of current health status

Conduct a comprehensive evaluation of the patient's current condition, focusing on the following:

(1) Physical examination

Perform neurological function tests to detect nerve damage or abnormalities.

(2) Laboratory tests

Conduct blood and urine tests to check for inflammation, infection, or other health issues.

(3) Imaging studies

Use diagnostic tools such as:

- X-rays
- Magnetic Resonance Imaging (MRI)
- Computed Tomography (CT)
- Ultrasound

4.4. Evaluation of daily life functioning

Assess how pain affects the patient's daily activities using the following measures:

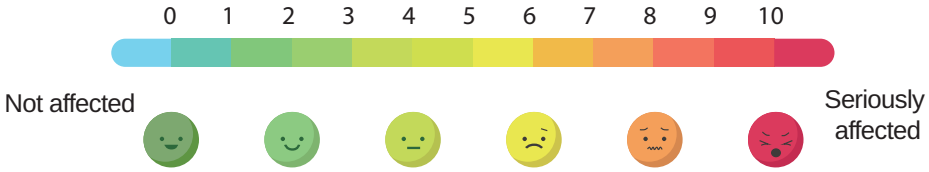
(1) Independence in activities of daily living (ADLs)

Use a numerical scale (0–10) to evaluate the patient's ability to: Bathe, dress, use the toilet, move, and eat.

(2) Disability in daily routines

Use a numerical scale (0–10) to evaluate the impact of pain on: Household chores, schooling, work, social activities, leisure, sexual activity, exercise, sleep, and emotional well-being.

Figure 2. The extent to which daily life is affected by pain (numerical scale, with 10 points)



Note: Items evaluated can include:

1. Assessment of Independence in Daily Living Activities: Activities such as bathing, dressing, toileting, mobility, and eating.
2. Assessment of Functional Disability: Tasks such as household chores, school/work participation, social activities, leisure, sexual function, and self-care.
3. Assessment of Impact on Daily Routines: Factors such as enjoyment of life, overall activity levels, sleep, and mood.

4.5. Evaluation of psychological and mental state (quality of life)

Assessing the psychological and mental state of a patient provides a more comprehensive understanding of their quality of life and potential influencing factors. Evaluation includes:

(1) Mental disorders and their severity

- Check for the presence of the following mental health conditions:
- Anxiety disorders
- Depression
- Bipolar disorder
- Post-traumatic stress disorder (PTSD)
- Other psychiatric disorders

(2) Substance use and abuse history

Assess usage or misuse of the following substances:

- Tobacco
- Alcohol
- Drugs
- Controlled substances

(3) History of suicidal behavior

- Determine whether the patient has a history of suicidal thoughts or actions.
- Assess the frequency and severity of such behaviors.

(4) Personal growth history

Explore the patient's developmental history, particularly childhood experiences, such as:

- Abuse
- Harm or injury
- Abandonment

(5) Assessment of social relationships

- Interpersonal relationships and social support

Does the patient have a stable circle of friends, social networks, or a reliable support system?

- Family relationships

  Assess patterns of family interaction, including:

☆ Neglect.

☆ Overprotection.

- Work status and satisfaction

  Evaluate the following:

☆ Is the patient actively engaged in work?

☆ Are they satisfied with their job?

☆ Do they perceive their work as harmful to their health?

- Coping strategies

  Identify the patient's current and past coping mechanisms when faced with unsatisfactory situations.

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Chapter 4

Assessment and Treatment of Co-occurring Mental Disorders

1. Introduction

1.1. Chronic pain, substance use disorders (including opioid use disorder), mental disorders, and psychological distress/pain are all controlled by a complex central regulatory system. In this system, chronic pain, substance use disorders (including opioid use disorder), mental disorders, and psychological distress/pain are closely intertwined and mutually influencing each other.

1.2. When a patient has multiple coexisting conditions, it is often difficult to distinguish which are primary, which are triggered, or if they coexist simultaneously. Therefore, a thorough evaluation by professional healthcare providers is necessary.

1.3. In terms of treatment, these diseases often share common characteristics. Therefore, medication needs to be carefully monitored for potential drug interactions or risks of drug overdose.

1.4. The focus of this chapter is to introduce the assessment and treatment principles for healthcare professionals when patients with substance use disorders (including opioid use disorder) also other mental disorders.

2.Glossary

2.1. Substance abuse

Refers to the repeated and illicit use of drugs or substances without medical assessment or prescription by a physician, which subsequently affects the individual's academic, occupational, or familial roles/functions, and may harm their physical health or lead to personal, social, or interpersonal problems.

2.2. Addiction

Refers to the inability of an individual to stop using or engaging in a certain substance or behavior, even when they are aware of its harmful effects on their mental and physical health. They experience strong cravings for these substances or behaviors, engaging in them repeatedly and uncontrollably. Addiction is influenced by various factors, including genetics, brain function, environmental surroundings, and personal experiences.

2.3. Mental disorders

Mental disorders, also known as mental illnesses, refer to all illnesses that affect thinking, perception, emotions, and behavior. Affected individuals experience significant distress or functional impairment. Mental disorders may result from brain abnormalities or a lack of mental well-being leading to functional impairment. Cultural backgrounds can influence the judgment and treatment of mental disorders.

3. Assessment

3.1. In order to make accurate diagnoses and provide effective treatment, clinical experts need detailed and precise assessments. Complete, reliable, and comprehensive information about a patient's medication or substance use can only be obtained in a secure, private consultation room, with a calm, non-judgmental professional, and a relaxed, trusting patient.

3.2. The most important task for clinical experts is to understand the complex causality between substance use and mental disorders, as well as the influences of genetics and environment. Clinical experts should also maintain an open attitude towards diagnosis, considering various possibilities to develop more thorough treatment plans that better meet the real needs of patients.

3.3. When clinical experts conduct an evaluation, they focus on the patient's life timeline, carefully clarifying and chronologically listing every significant life event (e.g., early life hardships, traumatic events), psychiatric symptoms, detailed timing and dosage of substance

use, occurrences of substance intoxication (overdose) or withdrawal symptoms, the reasons for relapses after successful substance cessation, and changes in the patient's role functioning due to substance use. Confirming these details helps clinical experts identify potential causal relationships between substance use and mental disorders.

3.4. Patients who simultaneously suffer from substance use disorders and mental disorders are highly likely to abandon treatment when subjected to criticism, derogation, negative attitudes, defensiveness, or unfriendly doctor-patient relationships. Untreated or prematurely discontinued treatment will lead to adverse physical and mental conditions for patients, resulting in greater costs for the patients, the healthcare system, and society. Therefore, healthcare professionals and patients' families need to consider various factors that may affect patient treatment, especially those hidden beneath legal and moral layers, and assist patients in accessing appropriate medical resources.

3.5. During assessment, clinical experts and family members need to eliminate biases. In the assessment process, causal relationships are often inferred gradually. Over-speculation can lead to bias. If the patient perceives that the clinical expert is biased, they may, in a self-protective mindset, provide information that contradicts the facts, or even request to leave treatment or question the expertise of the clinician.

3.6. Substance use, mental disorders, chronic illness and head injuries can all easily lead to cognitive impairments in patients. Therefore during assessments, clinical experts need to pay attention to whether the patient's cognitive

function has deteriorated. If patients have toxic (due to overdose), withdrawal, or acute psychiatric symptoms, cognitive function tests should be postponed until these conditions subside to avoid underestimating or overestimating intelligence levels. Clinical experts should also plan treatment according to the assessment results that align with the patient's cognitive level.

3.7. Diagnostic interviews are essential standard assessment methods for clinical experts during assessments. This is a very thorough but time-consuming evaluation process. The implementer needs to undergo rigorous training and possess extensive knowledge of psychopathology, pharmacology, and physiology. Assessment tools are used in clinical practice to assist in judgment, and the choice of tools varies depending on the context, purpose, and time.

4. Treatment principles

4.1. Patients who suffer from both substance use and mental disorders tend to exhibit behaviors that are more resistant to change, have lower motivation for change, lower treatment completion rates, more clinical symptoms, higher risk of relapse, higher rates of hospitalization, increased risk of violence and suicide, higher rates of incarceration, higher rates of homelessness and unemployment, higher risk of human immunodeficiency virus (HIV) infection, more family problems, and incur higher healthcare costs.

4.2. Principles of treatment:

(1) Treatment should be patient-centered, making it accessible, affordable, and acceptable to the patient. All treatments should be simplified, integrated, and made more convenient.

(2) During treatment, the focus should be on therapy while also coordinating with law enforcement, judicial, health, and social service systems or departments. This helps prevent patients from abandoning treatment due to concerns about legal issues when considering treatment acceptance.

4.3. To improve treatment, it is necessary to form interdisciplinary teams, integrate clinical care systems, and have the ability to activate medical resources promptly and effectively. Results of clinical care should be systematically categorized, analyzed, and accumulated to gather clinical practice experience. Team members involved in treatment need to receive regular training and update their knowledge.

4.4. Most mental disorders caused by substance use often gradually improve once substance use disorder treatment stabilizes. If the psychiatric condition does not improve, it is necessary to consider the possibility of a primary (non-substance-induced) psychiatric disorder, the use of other medications/substances, or whether the mental disorder could be caused by pain or other physiological factors.

4.5. Treatment includes various components such as treatment of mental/neurological/physiological disorders, medication management, psychotherapy (cognitive-behavioral therapy, dialectical behavior therapy), partner/family support/therapy, integration of social government resources, functional recovery treatment, and maintenance therapy.

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Chapter 5

Tolerance, Dependence, and Addiction to Opioid Drugs

1. Introduction

The complexity of addictive behaviors is evident in the variety of related terms. Concepts such as tolerance, dependence, and addiction are often confusing. This confusion arises from the differing ways experts and the general public use these terms, leading to their frequent misuse and conceptual misunderstandings. Opioids, due to their high risk of addiction, are particularly prone to issues of tolerance, dependence, and addiction in clinical settings. This chapter aims to explain and clarify these terms, providing a clear and accessible reference for the general public.

2. Tolerance

Tolerance refers to the phenomenon where, after using a substance for a period of time, the original dose no longer produces the same effect, necessitating an increased dose to achieve the desired outcome. This is a common challenge in managing chronic pain with opioids in clinical practice, as maintaining the same level of pain relief often requires escalating dosages. Although increasing the dose is a standard approach to addressing tolerance, the speed at which tolerance develops varies depending on the medication. For example: Tolerance to analgesic effects and euphoria tends to develop quickly. Tolerance to respiratory depression, however, develops more slowly. As a result, raising the dose to sustain pain relief can increase the risk of respiratory depression. The good news is that tolerance gradually diminishes after discontinuing opioids. The speed of this reversal depends on the type of medication, dosage, and duration of use, typically taking several days to weeks. However, in clinical practice, tolerance is not always easily distinguishable. When a patient reports "reduced effectiveness" of medication, careful evaluation is needed: If there is no evidence of increased pain intensity and the patient refers to a decrease in pain relief, this likely represents typical tolerance. In such cases, increasing the dose or switching medications may be necessary to maintain analgesic effects. If the patient confuses a reduction in euphoria or comfort with a decrease in pain relief, this could be linked to dependence or addiction rather than tolerance. Moreover, as the condition progresses. If pain intensity increases due to disease progression, requiring higher doses for adequate relief, this is not considered tolerance, dependence, or addiction but rather a natural response to the worsening condition.

3. Dependence

3.1. Components of dependence in substance use disorders

Dependence typically includes the following aspects:

(1) Physical dependence

Refers to the physiological effects that occur after repeated substance use.

(2) Behavioral dependence

Emphasizes patterns of substance-seeking behavior, often characterized by compulsive use.

(3) Psychological dependence (or habitualization)

Marked by an intense craving for the substance, often driven by a need to escape negative emotions, leading to persistent or intermittent use.

While physical dependence often occurs alongside tolerance, the two are not always present simultaneously.

3.2. Opioid dependence

Opioid dependence arises when long-term use of opioids is suddenly discontinued, significantly reduced, or counteracted with opioid antagonists. This may result in specific physiological and psychological symptoms, commonly referred to as withdrawal reactions. Withdrawal symptoms typically begin within 12 hours of stopping the medication and may include:

(1) Restlessness

(2) Yawning

(3) Tearing and nasal discharge

(4) Chills and sweating

(5) Nausea, vomiting, and diarrhea

(6) Muscle aches

(7) Insomnia

The onset and severity of these symptoms vary depending on the type of opioid, duration of use, and dosage. For example, some opioids require prolonged use to induce dependence, while the intensity of withdrawal symptoms increases with higher doses and longer usage periods. Understanding the different aspects and manifestations of dependence aids in accurately identifying patient needs and providing appropriate treatment and support.

4. Addiction

4.1. Definition and characteristics

Unlike dependence or tolerance, addiction is a chronic neurobiological disease influenced by genetic, psychological, social, and environmental factors. Its primary characteristics include:

(1) Loss of control over substance use.

(2) Compulsive substance use.

(3) Intense cravings.

(4) Continued use despite adverse consequences.

4.2. Addiction as a chronic and relapsing disease

Drug addiction is now recognized as a chronic and highly relapsing disease, characterized by:

(1) Compulsive drug-seeking and use.

(2) Inability to reduce or control drug use.

(3) Negative emotions (e.g., irritability, anxiety, anger) when unable to obtain the substance.

In earlier diagnostic classification systems, "substance abuse" and "substance dependence" were treated as separate diagnostic categories. However, these terms have been replaced by the more precise and neutral term "substance use disorder" (SUD). The core feature of SUD is a maladaptive pattern of substance use that results in clinically significant functional impairment or psychological distress, often leading to social or interpersonal problems. While SUD can include physiological dependence, physiological dependence is not a necessary criterion for diagnosis. The latest diagnostic systems have combined "substance abuse" and "substance dependence" into SUD, with severity assessed based on the number of diagnostic criteria met. Within this framework, addiction typically corresponds to moderate to severe SUD. Additionally, addiction is associated with changes in the brain's neural circuits. These changes may persist even after prolonged abstinence, leading to ongoing symptoms, frequent relapses, and strong cravings when exposed to relevant stimuli. However, with long-term treatment, these effects can gradually improve.

4.3. Substances covered under DSM-5

According to the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5), SUD encompasses a variety of substances, including:

(1) Alcohol

(2) Caffeine

(3) Cannabis

(4) Hallucinogens

(5) Inhalants

(6) Opioids

(7) Sedatives, hypnotics, or anxiolytics

(8) Stimulants

(9) Tobacco

(10) Other substances

If the substance in use is an opioid, the condition is referred to as opioid use disorder (OUD). For detailed diagnostic criteria and severity assessments of SUD, please refer to Table 1.

Table 1. Medical diagnosis of substance-related disorders

Substance Use Disorder is defined by the Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition (DSM-5) and encompasses dependence on drugs or chemicals. The disorder is classified into three severity levels based on the number of clinical symptoms: Mild: Presence of 2–3 symptoms. Moderate: Presence of 4–5 symptoms. Severe: Presence of 6 or more symptoms.
The diagnosis requires meeting at least 2 of the following criteria within a 12-month period: 1. Excessive Use: Consuming the substance in larger amounts or for longer durations than intended. 2. Inability to Control Use: Persistent desire or unsuccessful efforts to cut down or control substance use. 3. Time Consumption: Spending a significant amount of time obtaining, using, or recovering from the substance's effects.

4. Craving: Experiencing strong desires or urges to use the substance.
5. Role Failure: Repeated substance use leads to an inability to fulfill work, family, or school responsibilities.
6. Interpersonal Problems: Continued use despite persistent or recurrent social or interpersonal difficulties caused by substance use.
7. Activity Reduction: Giving up or reducing important social, occupational, or recreational activities due to substance use.
8. Risky Use: Repeated use of the substance in situations where it poses physical danger.
9. Health Deterioration: Continued use despite awareness that the substance is causing or worsening physical or psychological problems.
10. Tolerance: Needing increased amounts of the substance to achieve the same effect or experiencing diminished effects with the same amount.
11. Withdrawal Symptoms: Experiencing physical or psychological withdrawal symptoms after stopping substance use.

Note: Criteria 10 (tolerance) and 11 (withdrawal symptoms) are not counted toward diagnosis if they result from appropriate use of prescribed medications.

Although the term "addiction" is often perceived as pejorative and disregards its nature as a medical condition, the American Psychiatric Association (APA) removed it from formal medical diagnostic terminology as early as 1987. However, the term remains widely used and is commonly understood by the public. Both substance addiction and behavioral addiction share

common neurochemical and neuroanatomical foundations, indicating their strong association with the functioning of specific reward regions in the brain. Neurobiological research further underscores that addiction is a medical disease, not merely a matter of morality or willpower. Opioids, in particular, are highly addictive and are classified as controlled substances both domestically and internationally. Therefore, the general public should exercise caution when using opioids in clinical settings. Their use must strictly follow a physician's prescription and supervision to mitigate the risk of addiction. Such regulations not only reduce the likelihood of misuse but also safeguard the physical and mental health of the user.

5. Conclusion

Tolerance, dependence, and addiction are potential clinical outcomes of opioid use. However, when opioids are used correctly under a physician's guidance, addiction is unlikely to occur in most cases. If signs of tolerance, dependence, or addiction are suspected, professional medical assistance should be sought immediately. Currently, there are multiple approaches available for treating opioid use disorders, including pharmacological therapy, psychological counseling, and community rehabilitation. With appropriate treatment, most patients can gradually overcome withdrawal symptoms and cravings, restore normal functioning, and reintegrate into society. Proper treatment and support are essential to overcoming these challenges successfully.

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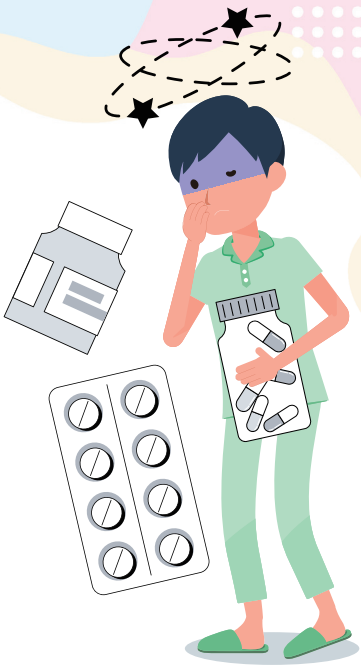
Chapter 6

Risk Assessment of Substance Use Disorder



1. Introduction

1.1. Substance use disorder (SUD), commonly known as addiction, is associated with substance misuse/abuse and addiction. Substances commonly misused/abused include sedatives/hypnotics, alcohol, opioids, and illicit drugs.

1.2. Opioid use disorder (OUD) is a subtype of SUD, specifically involving the misuse/abuse of opioids.

1.3. Patients suspected of SUD with non-cancer chronic pain should be treated according to the chronic pain management model published by the U.S. Department of Veterans Affairs in 2017. Refer to Chapter 2: Overview of Pain Management in Patients Suspected of Substance Use Disorder for details.

1.4. Non-cancer chronic pain (referred to as chronic pain) is defined as pain not caused by cancer and lasting for more than three months.

1.5. Patients with chronic pain who use opioids for more than three months have a 15-fold increased risk of developing OUD compared to non-users when the daily dose equivalent to oral morphine is 1-36 milligrams. The risk increases to 29 times for daily doses of 36-120 milligrams and to 122 times for doses greater than 120 milligrams.

1.6. Risk factors for developing OUD

(1) Long-term (>3 months) use of opioid medications

(2) Age younger than 65 years

(3) Presence of chronic pain

(4) Presence of sleep disorders

(5) Suicidal ideation

(6) Anxiety disorders

(7) Concurrent use of illicit drugs or substances

1.7. Patients with a history of OUD are highly prone to re-triggering OUD when using opioid medications for pain management.

1.8. Chronic pain is a multifaceted problem that is difficult to completely alleviate in the general population. When it occurs in individuals with suspected SUD, existing addiction becomes more complex and challenging to treat.

1.9. For individuals with suspected SUD, chronic pain exacerbates substance cravings, worsens withdrawal symptoms, increases the risk of SUD relapse, and decreases treatment retention rates.

1.10. Assessing the risk of SUD is crucial, especially before initiating opioid therapy for chronic pain. Even after initiation, regular assessment of risk of SUD is necessary for making ongoing adjustments to treatment.

2. Assessment of patient's risk of SUD before treatment

2.1. Evaluate the patient's risk of SUD based on their present and past medical history.

(1) Low risk

- No history of substance abuse.
- No other risk factors present.

(2) Moderate risk

- History of SUD.
- Family history of substance abuse.
- Patient or family history of mental illness.
- Previous non-adherence to medication regimen.
- Unclear characteristic features of pain exhibited by the patient.
- History of diseases related to injection drug use.
- Multiple past unexplained medical events (e.g., trauma, burns).

(3) High risk

- Current presence of SUD.
- History of opioid misuse.
- Previously categorized as moderate risk but exhibiting aberrant drug-taking behavior.

2.2. Evaluating SUD risk based on patient self-report questionnaires

The primary scoring contents of the questionnaire include:

(1) Family history of substance abuse.

(2) Personal history of alcohol abuse.

(3) Age under 65 years.

(4) History of sexual abuse before puberty.

(5) Presence of mental disorders.

(6) Diagnosis of depression.

3.Ongoing assessment of SUD risk during treatment

Effective treatment is influenced by various factors; therefore, continuous assessment of SUD risk is necessary to make rolling adjustments to the treatment. The areas reviewed include:

3.1. Adherence to the treatment modality.

3.2. Compliance with treatment protocols.

3.3. Response to the treatment regimen.

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Chapter 7

Treatment of Acute Pain

1. Introduction

1.1. The focus of this chapter is on the treatment of acute pain in patients with opioid use disorder in medical institutions.

1.2. Acute pain refers to general short-term pain and perioperative pain, including pain before, during, and after surgery.

1.3. Patients with opioid use disorder should receive appropriate treatment when experiencing acute pain to avoid relapse of opioid use disorder.

1.4. Acute pain is often caused by tissue damage, such as trauma, surgery, or burns. When such patients experience mild pain, the methods and medications for pain relief are the same as those for general population. When the

severity of acute pain reaches moderate to severe levels, additional opioid medications should be used for pain relief, and the dosage may be higher than normal. The reasons for this are as follows:

(1) These patients may have developed tolerance to opioid medications.

(2) These patients may also experience opioid-induced hyperalgesia.

1.5. When treating acute pain in such patients, it is important to monitor the relief of pain after medication use and to prevent opioid misuse, diversion, or withdrawal symptoms.

1.6. Since acute pain is usually temporary, it is important to communicate fully with the patient before treatment and to develop a plan to gradually discontinue the use of opioid medications as pain diminishes. If the patient is transferred to another physician, during pain treatment, a complete handover should be made to the receiving physician and documented in the medical records.

1.7. When such patients are receiving maintenance therapy with oral methadone solution or sublingual buprenorphine/naloxone tablets, the original methadone solution or buprenorphine/naloxone tablets should continue to be used. If they experience acute pain or require surgery. This not only provides partial pain relief but also reduces the dosage of other opioid medications and prevents relapse of opioid use disorder.

1.8. When surgical anesthesia is required, the surgical anesthesia method and medication use for such patients are the same as for other patients, but nerve blockade techniques may be considered preferentially. If necessary, opioid medications may be added for pain relief, but attention should be paid to the dosage used (which typically requires higher doses) and the accumulation of side effects.

1.9. When such patients receive treatment for acute pain and there is a need to increase opioid medication dosage rapidly, attention should be paid to the side effects of opioids, especially respiratory depression. Hospitalization and enhanced monitoring should be considered at this time. When respiratory depression occurs injectable opioid antagonists (such as naloxone) may be used for treatment.

1.10. If the patient is already receiving naltrexone therapy for alcohol dependence (which is also used abroad for other substance use disorders), naltrexone should be discontinued for at least 48-72 hours before undergoing necessary surgery or other acute pain treatments. If acute pain occurs, local or regional anesthesia may be administered to the affected area for pain relief. If opioids are deemed necessary after evaluation, higher doses should be considered.

1.11. When patients have successfully overcome opioid use disorder and opioids are needed again for acute pain, attention should be paid to the possibility of re-inducing opioid use disorder. However, the administration of analgesics should not be reduced due to this concern. Inadequate pain relief or pain management techniques can also lead to cravings for opioids, thereby inducing opioid use disorder.

1.12. The chosen analgesic therapy should be communicated with the patient in advance and carried out with consensus. Non-opioid analgesic methods should be prioritized whenever possible.

1.13. Other Considerations:

(1) Common comorbidities in such patients include: HIV/AIDS, hepatitis, cirrhosis, tuberculosis, endocarditis, cellulitis, abscesses, and chronic pain.

(2) Common psychological/psychiatric comorbidities in such patients include: anxiety disorders, depression, personality disorders, and post-traumatic stress disorder (PTSD).

(3) Common social support deficiencies in such patients include: unstable housing, lack of care from family and friends, and history of violent conflicts with others.

2. Concerns and common medical challenges for patient upon hospital admission

2.1. Concerns or experiences of unfair treatment.

2.2. Concerns or experiences of physicians underestimating, ignoring, or not prioritizing the patient's pain due to substance use disorder.

2.3. Concerns or experiences of inappropriate pain management leading to withdrawal syndrome.

3. Concerns and common medical challenges for physicians

3.1. Concerns or experiences of patients distrusting physicians.

3.2. Concerns or experiences of overprescribing opioids leading to respiratory depression.

3.3. Need to differentiate between pain and drug craving.

3.4. Concerns or experiences of patients diverting prescribed opioids.

3.5. Concerns or experiences of patients showing poor compliance with medical instructions and medication usage.

4. Medical management of acute (short-term) non-surgical pain

Patients experiencing acute pain typically require more than just the maintenance therapy of morphine or codeine. Additional analgesic methods or medications are often utilized in healthcare facilities, including:

4.1. For mild to moderate pain

(1) Consider using medications to alleviate muscle spasms causing pain.

(2) When patients exhibit symptoms of anxiety, consider administering anti-anxiety medications.

(3) Consider adjunctive therapies to alleviate pain, such as local massage, acupuncture, or local injection with local anesthetics.

(4) When considering analgesic medications, prioritize non-opioid medications such as nonsteroidal anti-inflammatory drugs (NSAIDs), acetaminophen, and topical analgesic patches.

(5) If the above methods fail to effectively relieve pain, consider using opioid analgesics, starting with the lowest effective dose.

4.2. For severe pain

(1) If the patient remains in severe pain after initial management, considering adjunctive use of opioid analgesics is appropriate. However, patients in this category, who have been using oral morphine solution or sublingual compound codeine tablets for an extended period, often develop tolerance to opioid analgesics. Therefore, the required dosage may be higher than usual. Careful evaluation of pain relief and potential drug overdose is necessary after administration.

(2) If pain relief is inadequate, consultation with pain management specialists and addiction treatment experts is advisable to assess the underlying causes and provide treatment strategies.

5. Pain management during surgery

Common approaches used in medical facilities (in addition to existing treatments) are as follows:

5.1. Throughout the perioperative period (preoperative, intraoperative, postoperative), continue administering the medications used for maintenance therapy. However, if it is inconvenient to administer these medications due to preoperative fasting or during surgery, they may be temporarily discontinued. After surgery, resume the use of maintenance therapy medications. However, medications discontinued during surgery due to the aforementioned factors do not need to be replenished.

5.2. Priority should be given to nerve block anesthesia methods such as regional anesthesia or local anesthesia.

5.3. When general anesthesia is necessary, inhalational anesthetics or intravenous anesthetics may be used, supplemented by opioid analgesics.

5.4. During the perioperative period, patients in this category can use analgesic medications (including opioid analgesics) like other patients. However, avoid using opioid agonist/antagonists as they may induce withdrawal reactions.

6. Management of postoperative pain

Common approaches used in medical facilities (in addition to existing treatments) are as follows:

6.1. Patients with opioid use disorder should receive postoperative pain management in the same manner as other patients. However, if opioid analgesics are required for pain relief, higher doses may be needed.

6.2. For patients currently undergoing maintenance therapy, the medications used in their maintenance therapy should continue to be administered postoperatively. Additional pain relief medications may be given as supplements.

6.3. Continuous epidural analgesia, regional nerve blockade, or local nerve blockade can all be options for postoperative pain management.

7. Discharge preparation services

7.1. Arrange and coordinate with units that provide follow-up maintenance therapy for patients to prevent withdrawal reactions or exacerbation of conditions due to inadequate supply of maintenance therapy medications.

7.2. If patients still require pain relief medication after discharge, priority should be given to nonsteroidal anti-inflammatory drugs (NSAIDs) or acetaminophen. If necessary, short-term use of opioid medications may be supplemented, followed by gradual tapering of the dosage until discontinuation.

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Chapter 8

Goals and Strategies for Chronic Pain Management

1. Introduction

1.1. The focus of this chapter is to discuss the goals and strategies for the management of chronic non-cancer pain in patients with substance use disorders(SUD). Chronic pain is defined as pain lasting for more than three months.

1.2. Patients with SUD present a challenge in medical care when treating their non-cancer chronic stubborn pain with opioid analgesics. Careful assessment and management are required in terms of efficacy, side effects, and the risk of drug misuse.

1.3. The treatment model for non-cancer chronic pain in these patients is based on the Chronic Pain Treatment Model published by the U.S. Department of Veterans Affairs in 2017 (Table 1).

Table 1: Stepwise model for chronic pain management

The treatment of chronic pain is divided into four levels based on the complexity of the condition:
Stage 1: Self-management Patients engage in self-directed pain management strategies, such as: Self-rehabilitation/exercise. Stress-relief activities (e.g., yoga, tai chi, mindfulness). Self-care for pain-related comorbidities (e.g., chronic disease self-management).
Stage 2: Non-pharmacological treatment Building upon self-management, healthcare providers offer non-pharmacological treatments, such as: Rehabilitation therapy. Psychiatric consultations and psychotherapy. Other non-invasive treatment methods.
Stage 3: Non-opioid pharmacological treatment In addition to the second step, healthcare providers introduce non-opioid medications, including: Antidepressants. Anticonvulsants. Other analgesics.
Stage 4: Multidisciplinary intervention and cautious use of opioids Building upon the third step, a multidisciplinary team addresses pain-related factors, including: Interventional treatments (e.g., nerve blocks, surgery). In exceptional cases, opioids may be used intermittently if the benefits outweigh the risks of addiction, following thorough evaluation.

Note: This stepwise treatment model, published by the U.S. Department of Veterans Affairs in 2017, is currently the most up-to-date and internationally recognized model for chronic pain management. Core Principles: Regardless of the stage, patients are encouraged to actively manage their pain and related comorbidities and to participate in treatment proactively. Opioid use is reserved as a last resort, to be used cautiously and intermittently after rigorous assessment.

2. The treatment goals for non-cancer chronic pain in SUD patients

2.1. Overall objective: Stabilize symptoms of SUD, provide appropriate pain relief, restore functional capacity, and enhance quality of life.

2.2. Sub-objectives:

(1) Stabilize symptoms of SUD and address related mental health comorbidities.

(2) Alleviate physical pain and restore physical health (functional recovery).

(3) Promote positive emotional well-being (enhance quality of life).

(4) Strengthen social support (family, friends, community).

3. Care strategies for patients with non-cancer chronic pain

3.1. Physiological/physical care:

(1) Continuation of care for SUD.

(2) Arrange necessary tests/examinations based on the cause and severity of the patient's pain to establish an accurate diagnosis.

(3) Provide appropriate treatment recommendations and care for existing chronic conditions (e.g., respiratory or cardiovascular diseases).

(4) Pain management.

(5) Encourage patients to engage in physical exercises for self-care.

3.2. Psychological/mental health care:

(1) Providing patients with understanding of SUD.

(2) Providing patients with understanding of mental comorbidities.

(3) Providing patients with understanding of non-cancer chronic pain.

(4) Guide patients to actively participate in disease prevention and management.

(5) Referral to mental health professionals for psychological/emotional support and care to enhance their quality of life.

3.3. Strengthening social/interpersonal support:

(1) Instruct patients on how to strengthen family and social support, and assist in maintaining basic financial support to rebuild interpersonal relationships and reintegrate into society.

(2) Arrange post-discharge continued care and rehabilitation.

4. Key concepts and therapies in the care of non-cancer chronic pain

4.1. Patient's correct understanding of the condition:

(1) Patients and their families should have an appropriate understanding of SUD and chronic pain.

(2) Comorbidities or unhealthy habits related to chronic pain should also be addressed and improved.

4.2. Promoting physical fitness and improving mood (physical and mental health promotion):

(1) Enhancing physical fitness and restoring functional ability:

- It is recommended to participate in regular therapeutic physical rehabilitation programs to restore flexibility, muscle strength, endurance, and joint range of motion, thereby reducing pain and gradually restoring function to the affected area. Additionally, engaging in active exercise, particularly walking, can stimulate the brain and improve mood by alleviating depression and anxiety.

- Therapeutic exercise should include:

☆ Joint mobility exercises,

☆ Stretching exercises,

☆ Muscle strength training, and

☆ Strengthen cardiovascular function.

These exercise regimens require consistent and voluntary participation from the patient to be effective.

- Types of therapeutic exercises include:

☆ Rehabilitation therapy arranged within the hospital setting.

☆ Patient-initiated rehabilitation and wellness activities, such as dancing, walking, yoga, tai chi, and other gentle forms of exercise.

(2) Improving mood: Maintaining a positive emotional state to enhance quality of life.

- Understanding the condition and its treatment plan, and actively cooperating with it (this is the most important aspect and the key to maintaining a positive mood).

- Cultivating a healthy lifestyle, including:

☆ Developing habits of regular exercise (physical activity).

☆ Maintaining a balanced and nutritious diet.

☆ Ensuring good quality sleep (restorative sleep).

☆ Releasing stress or improving resilience to stress (stress management).

☆ Adopting a positive mindset (positive social connections).

☆ Avoiding the use of harmful substances (staying away from hazardous substances).

(3) Enhancing social/interpersonal support (restoration of interpersonal relationships and social functioning)

The following methods can increase the patient's social (and societal) support:

- Active involvement of family members: Family members should have a moderate understanding of the patient's condition, adjust their coping attitudes (positive emotions), and enhance caregiving skills.
- Encouraging the patient to engage in social activities, such as neighborhood gatherings, attending church, or participating in activities of other religious organizations.
- Encouraging the patient to join relevant support groups and participate in their activities.
- Seeking assistance from social resources.

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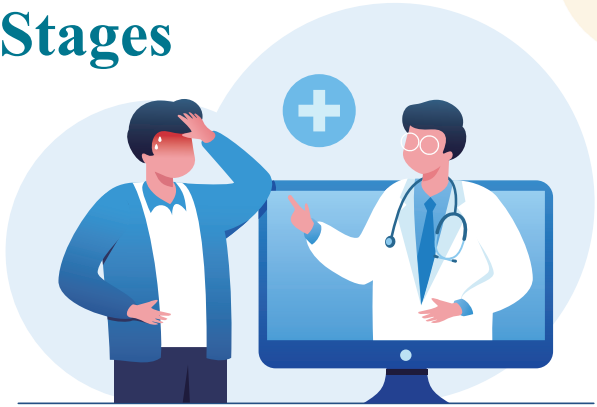
Chapter 9

Pain Management in Patients at Different Recovery Stages



1. Introduction

1.1. This chapter focuses on discussing pain management in patients with substance use disorders who also suffer from non-cancer chronic pain at different recovery atages.

1.2. Patients with substance use disorders pose a challenge in medical treatment when they require opioid medications to manage their non-cancer chronic intractable pain. The efficacy, side effects, and risks of medication abuse need to be carefully evaluated and addressed.

1.3. The treatment model for non-cancer chronic pain in such patients is based on the Chronic Pain Treatment Model published by the U.S. Department of Veterans Affairs in 2017, as detailed in Table 1.

Table 1: Stepwise model for chronic pain management

The treatment of chronic pain is divided into four levels based on the complexity of the condition:
Stage 1: Self-management Patients engage in self-directed pain management strategies, such as: Self-rehabilitation/exercise. Stress-relief activities (e.g., yoga, tai chi, mindfulness). Self-care for pain-related comorbidities (e.g., chronic disease self-management).
Stage 2: Non-pharmacological treatment Building upon self-management, healthcare providers offer non-pharmacological treatments, such as: Rehabilitation therapy. Psychiatric consultations and psychotherapy. Other non-invasive treatment methods.
Stage 3: Non-opioid pharmacological treatment In addition to the second step, healthcare providers introduce non-opioid medications, including: Antidepressants. Anticonvulsants. Other analgesics.
Stage 4: Multidisciplinary intervention and cautious use of opioids Building upon the third step, a multidisciplinary team addresses pain-related factors, including: Interventional treatments (e.g., nerve blocks, surgery). In exceptional cases, opioids may be used intermittently if the benefits outweigh the risks of addiction, following thorough evaluation.

Note: This stepwise treatment model, published by the U.S. Department of Veterans Affairs in 2017, is currently the most up-to-date and internationally recognized model for chronic pain management. Core Principles: Regardless of the stage, patients are encouraged to actively manage their pain and related comorbidities and to participate in treatment proactively. Opioid use is reserved as a last resort, to be used cautiously and intermittently after rigorous assessment.

1.4. When patients with substance use disorders suffer from non-cancer chronic pain, they should be encouraged to actively participate in various treatment activities and self-care practices as follows:

(1) Medical treatments provided by healthcare facilities: medication, surgery, psychological therapy, rehabilitation therapy, etc.

(2) Self-care for chronic comorbidities.

(3) Treatments and physical exercises conducted independently by patients: rehabilitation/exercise, yoga, tai chi, swimming, jogging, dancing, etc.

(4) Self-adjustment in daily life and psychological strengthening: reducing psychological/mental stress/pain and enhancing mental resilience.

1.5. When considering initiating opioid analgesia for patients with non-cancer chronic pain, the following points should be considered in medical practice:

(1) Is the severity of pain still moderate to severe?

(2) Have non-opioid treatments or medications been optimized?

(3) Are realistic goals for pain improvement and restoration of physical/life functions established?

(4) The benefits of opioid analgesia (pain relief, restoration of physical/life functions) should outweigh the risks (such as overdose or addiction).

(5) Establish reasonable criteria for continued or discontinued use of opioid analgesics and ensure patient understanding. Additional opioid analgesics should be used on a short-term/temporary basis.

(6) Continuously assess the relief of pain and the restoration of physical/life functions.

(7) Schedule regular follow-up visits and assess the above conditions.

2. The use of opioid medications in patients with chronic refractory pain during different recovery stages

2.1. In patients with opioid use disorder, their condition can be categorized into untreated, under medication treatment, and recovery stages. When opioids are necessary for treating chronic pain, the principle is to use them for a short term.

2.2. For patients with active non-cancer chronic intractable pain who have not yet received treatment and are considering the use of opioid analgesics for pain relief, the common medical interventions are as follows:

(1) Priority is given to the treatment of pain with sublingual buprenorphine tablets, which can simultaneously address the condition requiring opioid analgesic use and pain. The dosing interval is 6-8 hours, starting with small doses and gradually

adjusting to the lowest effective dose. Other opioid analgesics may also be used if necessary.

Note: Sublingual buprenorphine tablets (whether compounded or single-agent) generally provide pain relief for only 6-8 hours, but their efficacy for addiction treatment can last for 24-36 hours.

(2) For breakthrough pain, other short-acting opioid analgesics can be used for treatment, but the dosage may need to be increased. These patients often develop tolerance to opioid analgesics due to long-term use of certain opioid analgesics. In addition, buprenorphine also antagonizes the effects of some additional opioid analgesics, reducing their analgesic efficacy.

2.3. For patients with opioid use disorder who are currently undergoing methadone treatment and are considering the use of opioid analgesics for non-cancer chronic intractable pain, the common medical interventions are as follows:

(1) Switch to a chronic pain treatment regimen primarily using other opioid analgesics; however, the dosage may need to be increased. These patients often develop tolerance to opioid analgesics due to long-term methadone use.

(2) Previously used maintenance therapy medication (methadone) does not need to be discontinued (maintain the original usage and dosage).

2.4. For patients with opioid use disorder who are currently undergoing treatment with sublingual buprenorphine tablets and are considering the use of opioid analgesics for non-cancer chronic intractable pain, the common medical interventions are as follows:

(1) Priority is given to considering buprenorphine for the

treatment of chronic pain. The dosage of sublingual buprenorphine tablets may be increased (such as increasing the daily dose by 20-25%), and the daily dose should be administered in divided doses every 6-8 hours, gradually adjusting to the lowest effective dose. Other opioid analgesics may also be used if necessary.

(2) For breakthrough pain, other short-acting opioid analgesics can be used for treatment, but the dosage may need to be increased. Long-term use of buprenorphine can lead to tolerance, and buprenorphine also antagonizes the effects of some additional opioid analgesics.

2.5. For patients with alcohol dependence or other substance use disorders who are currently undergoing treatment with naltrexone for non-cancer chronic refractory pain and are considering the use of opioid analgesics for pain relief:

(1) Immediately discontinue the use of naltrexone (regardless of oral or subcutaneous injection). Naltrexone is an antagonist of opioid analgesics and will counteract the effects of additional opioid analgesics.

(2) If naltrexone is still present in the body, the dosage of additional opioid analgesics should be increased. It is recommended to adjust the appropriate dosage in an inpatient setting and closely monitor whether there is an overdose of opioid analgesics, which may lead to respiratory depression.

(3) If naltrexone is no longer present in the body, the dosage of additional opioid analgesics should be

similar to that of the general population because at this point, the patient's response to opioid analgesics is not different from that of the general population, and there will be no tolerance to the medication.

2.6. For patients who have previously suffered from opioid use disorder and are currently in remission without taking any maintenance therapy medications, when considering the use of opioid analgesics for non-cancer chronic intractable pain, the common medical interventions are as follows:

(1) Consult the treating physician who managed the opioid use disorder (usually a psychiatrist) to assist with treatment Other opsoid analgesics may also be used if necessary.

(2) Prioritize the use of sublingual buprenorphine tablets for the treatment of non-cancer chronic refractory pain, but administer in small doses at intervals (once every 6-8 hours), and prevent the recurrence of the original disorder.

(3) When pain relief is still insufficient, the dosage of sublingual buprenorphine tablets can be increased.

(4) For breakthrough pain, other short-acting opioid analgesics should be used.

3. Discontinuation of opioid analgesics

For chronic pain management, as pain gradually diminishes, it is recommended to gradually taper off or discontinue additional opioid analgesics used for pain treatment. However, the original opioid analgesics used for addiction treatment and their usage regimen should still be retained.

4. Other scenarios

4.1. Treatment for cancer pain and end-of-life pain:

(1) For patients with opioid use disorder, treatment for cancer pain or end-of-life pain follows the same protocol as for general cancer or end-of-life patients.

(2) If opioid analgesics are necessary after evaluation, whether for acute or chronic pain, the principle is to use additional opioid analgesics for pain relief. However, attention should be paid to the dosage and administration to avoid under-dosing or overdosing.

(3) Existing maintenance therapy medications should generally continue to be used.

(4) Due to the rapid and complex changes in the condition of cancer/end-of-life patients, treatment or management needs to be adjusted dynamically. Therefore, it is necessary to consolidate opinions from pain management, palliative care, and addiction treatment experts to formulate a comprehensive treatment plan.

4.2. Treatment for neuropathic pain:

Generally, opioid analgesics are not effective for treating neuropathic pain. Therefore, it is not recommended to use opioid analgesics for pain relief for patients with opioid use disorder experiencing neuropathic pain. The treatment should involve the use of non-opioid analgesics, as detailed in the first to third-stage therapies in Table 1.

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Chapter 10

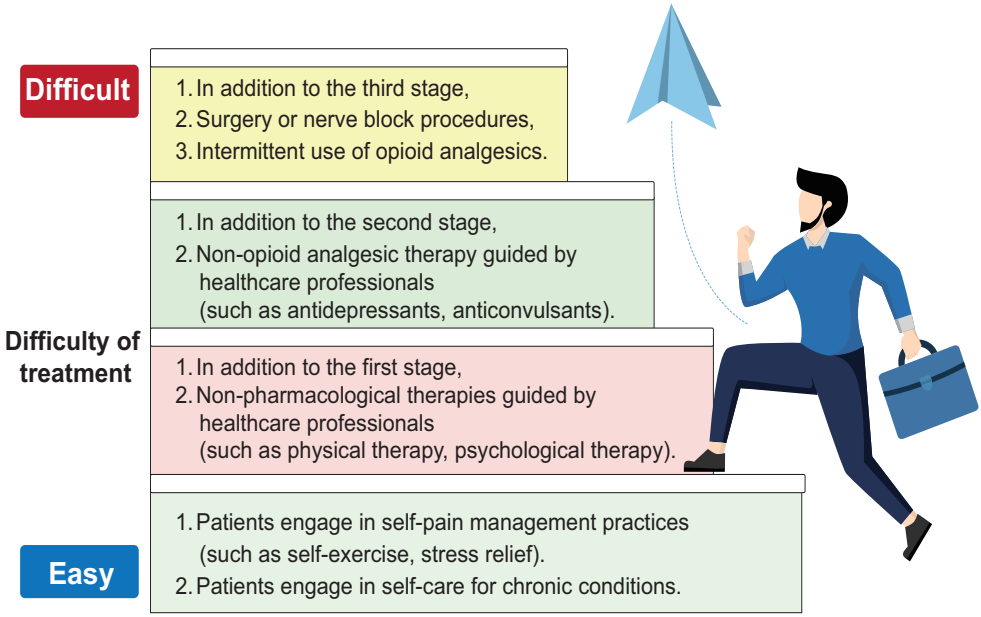
Non-Pharmacological Pain Management

1. Introduction

1.1. The facets of care in chronic pain management are divided into physiological (care for the body/disease treatment), psychological (cognitive aspects of chronic pain and support in mental, emotional, and spiritual aspects), and social (recovery of family support/social support). The primary goal of care is not only to alleviate pain but also to restore the patient's daily activities and autonomy (i.e., improve function and quality of life).

1.2. When patients suspected of opioid addiction experience non-cancer chronic pain, their treatment follows the Chronic Pain Treatment Model published by the U.S. Department of Veterans Affairs in 2017 (refer to Figure 1), which is a stagewise treatment model. This chapter discusses the treatment modalities in the first and second stages of the four-staged model.

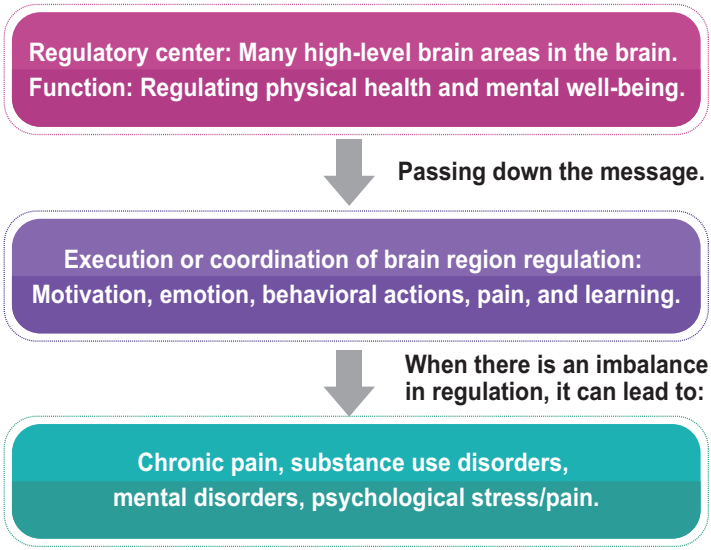
Figure 1. Stagewise treatment model for chronic pain



2.Understanding the central nervous system regulation

2.1. Chronic pain, substance use disorders (including opioid use disorder), mental disorders, and psychological stress/pain are all regulated by a complex but structurally similar mind-body regulatory system (see Figure 2).

Figure 2. Mind-body regulatory system in the brain



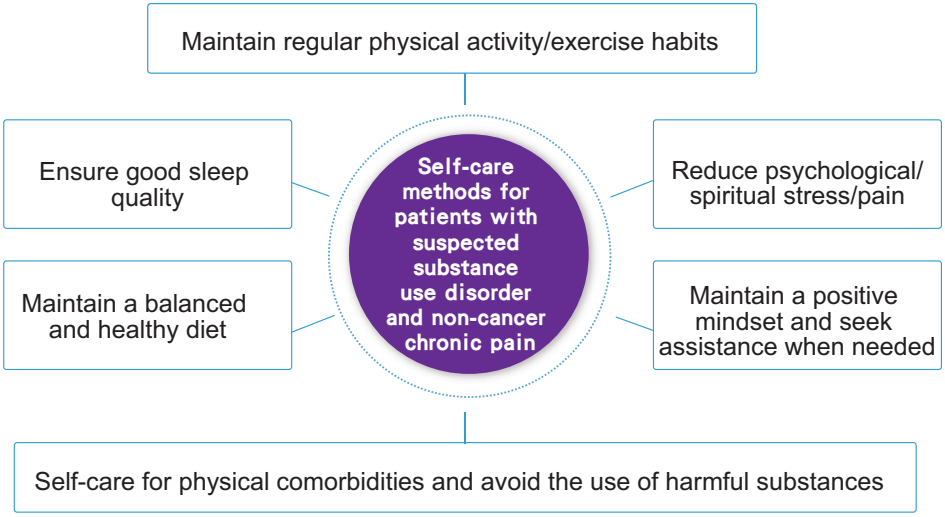
2.2. The regulatory center of the mind-body regulatory system receives and balances various information to make appropriate adjustments to maintain physical and mental health and well-being. However, if despite adjustments, health and well-being cannot be maintained, symptoms such as anxiety, depression, pain, and abnormal behavior related to substance use may appear.

2.3. The treatment methods provided in this Chapter use non-pharmacological approaches to strengthen the mind-body regulatory center and regulate pain, substance use disorders, mental disorders, and psychological/spiritual stress/pain for relief (in Section 3 for self-care at home for stage 1 patients, and in Section 4 for hospital care for stage 2 patients).

3. Stage 1 therapy

Patients perform self-pain management and self-care for pain-related comorbidities (see Figure 3). This therapy is crucial for patients' basic physical and psychological well-being.

Figure 3. Self-care methods for patients with suspected substance use disorder and non-cancer chronic pain



3.1. Maintaining regular activity/exercise habits

(1) Chronic pain can disrupt people's daily activities and thus alter their lifestyle habits.

(2) Chronic pain often limits the range of motion of limbs/joints, leading to stiffness and exacerbating pain. Moderate activity/exercise is a good remedy for treating chronic pain.

(3) Discuss suitable activities/exercises with a physician.

(4) Proper activity/exercise can strengthen/improve the function of organs and tissues, including the heart, lungs, gastrointestinal tract, sympathetic and parasympathetic nervous systems. It can also normalize hormone secretion, improve mood, reduce depression/anxiety, and alleviate pain.

(5) Normal self (home) activities/exercises include yoga, tai chi, swimming, jogging/brisk walking, dancing, and other gentle exercises.

(6) Choose 1-2 light activities/exercises based on your physical condition to start with. Gradually increase the duration and variety of activities/exercises according to your physical progress.

(7) Provide positive feedback to yourself as you progress in physical fitness.

3.2. Maintaining good sleep quality

(1) Sleep quality deteriorates when experiencing pain disturbances. Poor sleep quality exacerbates pain and forms a vicious cycle.

(2) Poor sleep quality not only causes mental stress but also exacerbates anxiety, depression, and affects learning and sexual function.

(3) Having a healthy body and a happy mood are basic conditions for good sleep quality.

(4) Methods for creating good sleep quality

- Create a sleep-friendly environment/bedroom.
- Maintain regular daily routines.
- Go to bed at fixed times and in a comfortable, warm, and relaxed state.

- Avoid consuming coffee (caffeine has a half-life of about 2.5-4.5 hours in adults), tea, smoking, and other stimulant medications before bedtime, even 3-5 hours before.
- Utilize relaxation, deep breathing, and mindfulness meditation techniques to focus on the present moment, alleviate distractions, and induce sleep.

3.3. Reducing psychological/spiritual stress/pain

(1) Psychological/spiritual stress/pain is closely related to chronic pain, substance use disorders (including opioid use disorders), and mental disorders, often coexisting and forming a vicious cycle that exacerbates individual conditions. Reducing psychological/spiritual stress/pain may interrupt the vicious cycle that triggers chronic pain.

(2) Simple, slow deep breathing exercises, involving slow inhalation and exhalation repeated several times, can effectively reduce tension and anxiety.

(3) When under stress or mental tension, adopting a sitting or lying position or leaning against a wall or pillar, and taking a moment to relax and rest, can help reduce inner pressure.

(4) Mindfulness meditation

- Stop what you are doing and find a comfortable place to sit. Observe and focus on your breathing.
- Quietly observe the environment, bodily sensations, thoughts, and inner feelings. Keep your attention focused on the present moment. Use breathing and body sensation awareness to create distance from emotions.

- Adopt an accepting attitude toward oneself, avoiding self-criticism and stop amplifying negative thoughts.
- The effects of mindfulness take time and require repeated practice.

(5) Art and music

- Art and music therapy stabilize emotions by altering neural networks in the brain and releasing neurotransmitters (including endorphins).
- Chronic pain patients can express inner perceptions and feelings through art and music, alleviating inner pressure and stabilizing and regulating emotions.
- Art and music therapy are tailored to individual preferences/tastes.

3.4. Balanced and healthy diet

While the relationship between diet and pain is not entirely clear, certain foods can increase the body's inflammatory response and worsen pain. Adjusting dietary habits can be helpful for pain relief and beneficial for overall health in individuals with chronic pain. The following recommendations are suggested:

(1) Consume plenty of fresh fruits, vegetables, whole grains, and fish. Consider adopting a Mediterranean-style diet and increasing intake of probiotics for gut health.

(2) Reduce consumption of foods that can enhance inflammatory responses, such as sugar, carbohydrates, fried foods, and food additives.

(3) Minimize intake of overly sweet, salty, sour, spicy, oily, or hot foods.

3.5. Maintaining a positive attitude and seeking assistance

(1) Maintaining a positive attitude

- Cultivate a mindset of gratitude: Engage in daily meditation or expressions of gratitude for people and events in life. This practice strengthens one's emotional resilience, garners support from others, and fosters a more fulfilling life.
- Foster contentment and appreciation: Dedicate some time each day to reflect on and appreciate the positive aspects of life, including the people, events, and things around you. Cultivating contentment and appreciation can transform one's mood and strengthen emotional well-being.

(2) Seeking assistance

Support from family and friends plays a significant role in the treatment of non-cancer chronic pain in patients with suspected substance use disorders. When appropriate, healthcare providers can explain the patient's condition to family members and caregivers, enlist their support, and provide necessary assistance in caring for the patient. If needed, seeking assistance from social resources is also recommended.

3.6. Self-care for comorbidities and avoidance of harmful substances

(1) Chronic pain often interacts with physical/mental comorbidities, making pain management difficult. Common comorbidities include hypertension, heart disease, diabetes, joint disorders, obesity, and other chronic conditions.

(2) Through medical assessment, identify comorbidities, understand treatment plans, adhere to regular medical visits and medication regimens, enhance self-care abilities, modify lifestyle, and establish exercise habits.

(3) Stay away from substances harmful to the body and stabilize the condition of substance use disorders.

4. Stage 2 therapy

Therapeutic modalities provided or guided by hospitals to promote physical health and strengthen inner resilience against external stressors.

4.1. Rehabilitation therapy

(1) Rehabilitation exercises can restore flexibility, muscle strength, endurance, and joint range of motion in the body. They activate the physiological and metabolic functions of the affected tissues, thereby reducing pain.

(2) Common rehabilitation medical therapies include:

- Physical therapy: Restore joint mobility and flexibility exercises, muscle strength training, proprioception/balance training, and endurance training.
- Hydrotherapy: Utilize various physical properties of water (such as viscosity, buoyancy, hydrostatic pressure) in warm water, designing suitable treatments according to individual patient needs.
- Instrumental therapy: Includes superficial heat therapy, deep heat therapy, cryotherapy, electrotherapy, ultrasound therapy, iontophoresis, and laser therapy.

- Manual therapy: Includes massage, mobilization techniques, and manipulation.
- Traction therapy: Includes cervical and lumbar traction.
- Assistive device: Use of assistive devices to assist in activities/exercises.

4.2. Psychological/mental therapy

(1) Long-term pain can cause patients to experience prolonged feelings of frustration, disappointment, anxiety, depression, and mental exhaustion. Psychological/mental therapy can improve these psychological/mental symptoms.

(2) Cognitive-behavioral therapy: This therapy focuses on assisting patients in identifying the negative cognitive effects of pain on emotions. It provides patients with knowledge about the causes, risk factors, preventive measures, and improvement methods related to chronic pain. It teaches patients to try activities and exercises to cope with pain and put them into practice.

(3) Acceptance and commitment therapy: This therapy focuses on promoting cognitive flexibility (changing thoughts) and supporting individuals in taking action to pursue value-based goals.

(4) Motivational interviewing: This therapy is commonly used for patients with substance use disorders. Its aim is to understand and address conflicting emotions, find internal motivation for behavior change, and prepare for further treatment.

(5) Relaxation training: This includes techniques such as meditation, diaphragmatic breathing, progressive muscle relaxation, and guided imagery. These methods are useful therapeutic modalities for patients with chronic pain.

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Chapter 11

Rehabilitation and Exercise Therapy

1. Introduction

1.1. The focus of this chapter is to explore the use of rehabilitation and exercise therapy to alleviate non-cancer chronic pain in patients with substance use disorders. Chronic pain is defined as pain lasting for more than three months.

1.2. Chronic pain interferes with patients' daily activities/ exercise, leading to changes in their lifestyle habits.

1.3. Chronic pain often restricts the range of motion/ movement of limbs/joints, leading to stiffness and exacerbating pain. Appropriate rehabilitation activities/ exercises can alleviate pain.

1.4. Suitable and moderate rehabilitation activities/exercises can strengthen/improve the function of bodily organs, including cardiovascular function, gastrointestinal

function, sympathetic and parasympathetic nervous system function, thereby normalizing hormone secretion, improving mood, reducing depression and anxiety, and lowering pain perception.

2. Hospital-based rehabilitation

2.1. Rehabilitation exercises can restore the body's flexibility, muscle strength, endurance, and joint range of motion, as well as activate the physiological and metabolic functions of affected tissues, thereby reducing pain.

2.2. Common rehabilitation medical methods include the following:

(1) Exercise therapy: Restoring joint mobility, stretching exercises, muscle strength training, proprioception/ balance training, and endurance training.

(2) Hydrotherapy: Utilizing various physical properties of water (such as viscosity, buoyancy, hydrostatic pressure) in warm water, and planning treatment according to the individual needs of patients.

(3) Instrumental therapy:

- Superficial heat therapy
- Deep heat therapy
- Cryotherapy
- Electrotherapy
- Ultrasound therapy
- Iontophoresis
- Laser therapy

(4) Manual therapy: Including massage, mobilization techniques, and chiropractic adjustments.

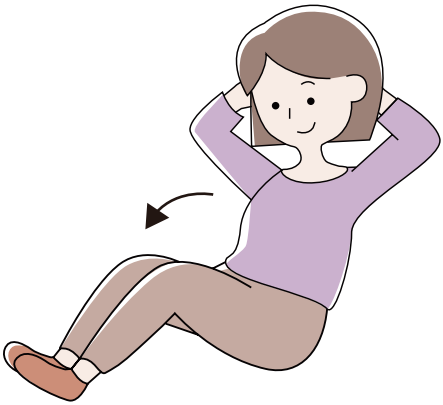
(5) Traction therapy: Including cervical and lumbar traction.

(6) Assistive device: Using assistive devices to aid in activities/exercises.

3. Home-based rehabilitation

3.1. Recommended home rehabilitation activities/exercises suitable for patients by a physician. Patients should then choose 1-2 lightweight rehabilitation activities/exercises based on their physical condition to start with; subsequently, they can gradually increase the duration and variety of rehabilitation activities/exercises according to their physical progress.

3.2. It is recommended that patients adjust their lifestyle to reduce psychological stress and pain.



4. Exercise training

The benefits of exercise are as shown in Figure 1:

Figure 1: Exercise can assist in the treatment of chronic pain

4.1. Exercise is also a method of medical treatment. For patients with chronic pain, effective pain management should include maintaining the body's ability to move. Exercise can activate bodily functions. While temporarily avoiding exercise may alleviate pain, prolonged inactivity can lead to loss of function in the affected area. Pain may not necessarily disappear and could even worsen due to joint stiffness. Therefore, it is recommended to continue and gradually increase the level of activity in the affected area.

4.2. Regular therapeutic exercise programs can restore body flexibility, muscle strength, muscle endurance, and joint range of motion. They can also reduce the sensation of pain and gradually restore function to the affected area. Additionally, engaging in active exercise, especially walking, can alleviate depression and anxiety.

4.3. Basic components of therapeutic exercise include:

(1) Increasing joint range of motion.

(2) Stretching exercises.

(3) Muscle strength training.

(4) Cardiovascular endurance training.

(5) These exercise regimens require the patient's voluntary participation and consistency to be effective.

4.4. Types of therapeutic exercise include:

(1) Routine rehabilitation therapy in hospitals.

(2) Rehabilitation/health-promoting exercises outside of hospitals, such as meditation, yoga, tai chi, walking, dancing, swimming, etc.

4.5. During exercise, patients with chronic pain may experience discomfort due to stretching of the affected area. Therefore, it is essential to develop individualized and gradual exercise therapy plans to prevent discouragement.

5. Exercise is also beneficial for addiction treatment.

5.1. Exercise can strengthen the body-mind regulation system in the brain, positively regulating and relieving pain, substance use disorders, mental disorders, and psychological stress/pain.

5.2. In recent years, exercise has been adopted in clinical settings as adjunctive therapy for patients with substance use disorders, contributing to overall health and fitness improvement and aiding in addiction relief.

(1) Exercise promotes health, improves mood, and has anti-anxiety effects, thereby reducing acute withdrawal symptoms and lowering the risk of addiction relapse.

(2) Exercise can have positive effects on individuals with substance use disorders through physiological, psychological, behavioral, and even gene activation mechanisms.

6. Engage in regular exercise training to promote physical and mental health.

6.1. Aerobic exercise

(1) Engage in any type of exercise at moderate intensity for a period of time while maintaining an increased heart rate at 60-80% of basic daily heart rate.

(2) Appropriate high-intensity aerobic exercise has been shown to alleviate depression.

6.2. Resistance training

(1) Engage in body activities that involve muscles feeling resistance.

(2) It can improve heart function, lower blood pressure, improve blood circulation, promote muscle growth, control blood sugar, and lower cholesterol.

6.3. Multi-joint complex movements

(1) Utilize two or more different joint movements to simultaneously stimulate entire muscle groups and multiple muscles.

(2) Requires more energy consumption compared to single-joint exercises, resulting in greater systemic stress, increasing metabolic rate, and stimulating the production of testosterone and growth hormone.

6.4. High-intensity interval training

(1) Involves alternating cycles of high-intensity exercise training and short rest periods within a short period of time. This method allows for more efficient use of exercise time, improving the patient's maximal oxygen uptake and enhancing muscle endurance.

(2) Calories and fat are burned after exercise, which helps promote metabolism, enhance muscle endurance, and increase cardiovascular function.

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Chapter 12

Treatment with Non-Opioid Analgesics

1. Introduction

1.1. Substance use disorder, commonly known as addiction, is associated with substance abuse/misuse and dependence. Substances commonly abused/misused include sedatives/hypnotics, alcohol, opioids, and illicit drugs.

1.2. For patients suspected of substance use disorder, non-opioid analgesics can be used for the treatment of acute or chronic pain, constituting the third stage of treatment in this patient population (see Figure 1).

1.3. Non-opioid analgesics used for the treatment of non-cancer chronic pain include acetaminophen, nonsteroidal anti-inflammatory drugs, antidepressants, antiepileptic drugs, centrally acting muscle relaxants, topical anesthetics patches, and other topical agents.

1.4. This chapter will systematically analyze each of the above-mentioned medications in terms of their efficacy, mechanism of action, indications, and side effects/ contraindications (see Table 1).

Figure 1. Stagewise treatment model for chronic pain

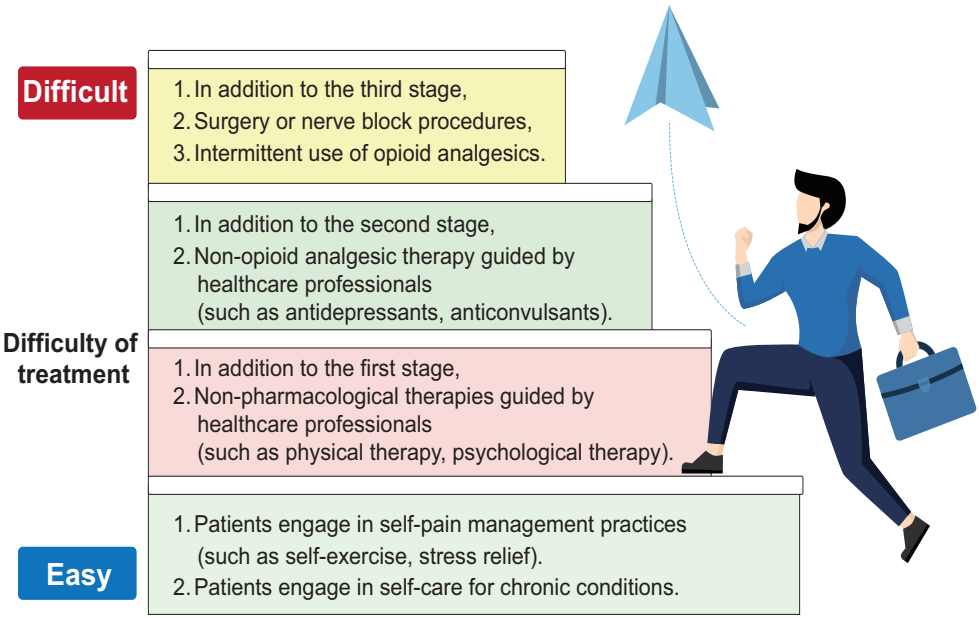

Table 1: Efficacy of various medications for non-cancer chronic pain

Medication	Indication	Pain Improvement	Daily Function Improvement
Non-Steroidal AntiInflammatory Drugs (NSAIDs)	Non-bacterial tissue inflammation	Small to moderate	None to small
Acetaminophen	Broad-spectrum use	Small	None
Antidepressants	Neuropathic pain	Small	None
Anticonvulsants	Neuropathic pain	Small to moderate	None (neuropathic pain), Small (fibromyalgia)
Opioids	Broad-spectrum use	None to small	None to small

References: See further reading 9 for details.

2. Acetaminophen

2.1. Action: Used to treat mild to moderate pain and has antipyretic effects.

2.2. Indications: Pain caused by injury to muscles, bones, and other non-neural tissues.

2.3. Side effects and contraindications:

(1) Precautions should be taken against its hepatotoxicity, especially in those with impaired liver function, concurrent alcohol use, or daily use exceeding 4 grams (in adults).

(2) Acetaminophen has no nephrotoxicity or gastrointestinal, cardiovascular toxicity.

3. Nonsteroidal anti-inflammatory drugs (NSAIDs)

3.1. Action: Used to treat mild to moderate pain and have anti-inflammatory and antipyretic effects.

3.2. Indications: Acute or chronic pain caused by injury to muscles, bones, and other non-neural tissues. Long-term use is not recommended.

3.3. Side effects and contraindications:

(1) Cardiac toxicity

There may be slight cardiac toxicity associated with this type of medication. It is not recommended for use in patients with heart failure.

(2) Hematologic toxicity

- When used in combination with anticoagulants, it may enhance the effects of anticoagulants, leading to an increased risk of bleeding.
- It is not recommended to use in conjunction with aspirin.

(3) Renal toxicity

This type of medication has renal toxicity.

- High-risk groups: Those older than 60 years, dehydrated individuals, multiple myeloma patients, diabetics, patients with kidney disease, or those using nephrotoxic chemotherapy drugs (such as cyclosporine, cisplatin).
- During the use of this type of medication, if a patient's renal function deteriorates or if hypertension develops, the use of this type of medication should be reduced or the dosage should be lowered.

(4) Gastrointestinal toxicity

This type of medication has gastrointestinal toxicity.

- High-risk groups: Those older than 60 years, individuals with a history of peptic ulcer disease, heavy alcohol drinkers, users of corticosteroid drugs, and long-term aspirin users.
- During the use of this type of medication, if a patient develops peptic ulcers or gastrointestinal bleeding, the medication should be discontinued.

3.4. Examples of commonly used medications (We list only the active ingredients of medications): indomethacin, methyl salicylate, etofenamate, diclofenac, piroxicam, niflumic acid, flurbiprofen.

Note: The following medications have less toxicity to the gastrointestinal tract, kidneys, and blood system, but attention should still be paid to their cardiac toxicity: celecoxib, etoricoxib, and parecoxib.

4. Antidepressants

4.1. Mechanism: Can be used to treat various types of neuropathic pain caused by nerve damage, including peripheral neuropathic pain and central neuropathic pain.

4.2. Indications: Partial efficacy for various types of neuropathic pain, such as diabetic neuropathy, post-herpetic neuralgia, central neuropathic pain after stroke, spinal nerve root lesion pain, and fibromyalgia.

4.3. Side effects and contraindications:

(1) Common side effects: fatigue, weakness, restlessness, insomnia, blurred vision, difficulty urinating, orthostatic hypotension, cardiac conduction abnormalities, weight gain, sexual dysfunction, etc.

(2) The following patients should use with caution: arrhythmia, recent history of myocardial infarction, cardiac conduction block, epilepsy, narrow-angle glaucoma, hyperthyroidism, urethral obstruction, and those taking monoamine oxidase inhibitors (MAOIs).

(3) After taking the medication, avoid operating machinery or driving, and also avoid drinking alcohol simultaneously.

4.4. Examples of commonly used medications (We list only the active ingredients of medications): amitriptyline, imipramine, nortriptyline, desipramine.

5. Anticonvulsants

5.1. Action: Used to treat various types of neuropathic pain caused by nerve damage, including peripheral neuropathic pain and central neuropathic pain.

5.2. Indications: Partial efficacy in various types of neuropathic pain, such as diabetic neuropathy, postherpetic neuralgia, central neuropathic pain, radicular pain, and fibromyalgia.

5.3. Side effects and contraindications:

(1) Common side effects: drowsiness, weight gain, rash, dizziness, loss of balance (ataxia), swollen gums.

(2) Contraindications: After taking the medication, avoid operating machinery or driving, and also avoid drinking alcohol simultaneously.

5.4. Examples of commonly used medications (We list only the active ingredients of medications): pregabalin, gabapentin, carbamazepine, lamotrigine, topiramate, oxcarbazepine.

6. Centrally acting muscle relaxants

6.1. Action: These medications act through the brain to relax tense or spasming muscles, such as skeletal muscle spasms and acute muscle pain.

6.2. Indications: Conditions such as fibromyalgia, skeletal muscle spasms, tension-type headaches.

6.3. Side effects and contraindications:

(1) Common side effects: drowsiness, fatigue, muscle weakness.

(2) Concurrent use of alcohol, sedatives, or antihistamines may exacerbate side effects such as drowsiness, fatigue, and weakness.

(3) If drowsiness occurs after taking the medication, avoid operating machinery or driving.

(4) Examples of commonly used medications (We list only the active ingredients of medications): baclofen, cyclobenzaprine, tizanidine.

7. Local anesthetic patches

7.1. Action: Applied to the skin to treat localized pain.

7.2. Indications: Conditions such as post-herpetic neuralgia, chest wall pain after thoracotomy, chest wall pain after mastectomy, inguinal wall pain, localized limb pain after surgery.

7.3. Side effects and contraindications: Few systemic and local side effects, but should be applied to healthy intact skin.

7.4. Examples of commonly used medications (We list only the active ingredients of medications): lidocaine, dibucaine, benzocaine.

8. Capsaicin cream or patch

8.1. Action: Applied to the skin to treat localized pain.

8.2. Indications: Conditions such as post-herpetic neuralgia, degenerative joint pain.

8.3. Side effects and contraindications:

(1) Systemic side effects are rare, but it should be applied to healthy intact skin.

(2) Localized skin reactions may include heat sensation, tingling, or erythematous skin reactions.

9. Dosage recommendations

Please follow the information provided on the individual medication's indications, drug information sheet, and consider the patient's specific circumstances such as age, gender, type of chronic pain, and the patient's overall health status to use the appropriate medication and dosage as directed by a physician.

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Chapter 13

Treatment with Opioid Analgesics

1. Introduction

1.1. The focus of this chapter is to explain the treatment of pain using opioid analgesics. The treatment of opioid use disorder with opioid analgesics is not within the scope of this chapter.

1.2. Understanding the relationship between opioid use disorder and pain

(1) Opioid use disorder is a specific classification of substance use disorder.

(2) Opioid use disorder is a chronic brain disease, and after prolonged use of opioid analgesics, may potentially develop this neurological condition.

(3) During acute pain episodes, the likelihood of developing opioid use disorder increases threefold with short-term use of opioid analgesics, regardless of dosage.

(4) During chronic pain episodes, the probability of developing opioid use disorder increases significantly with opioid analgesic use for more than three months. Compared to non-users, the risk increases by 15 times with daily doses equivalent to oral morphine doses of 1-36 milligrams, 29 times with doses of 36-120 milligrams, and 122 times with doses exceeding 120 milligrams.

(5) Patients with opioid use disorder (referred to as patients below) can be appropriately treated, and their pain can be adequately relieved.

(6) The treatment goal for such patients is to stabilize the condition of opioid use disorder, provide appropriate pain relief, and improve their functional and quality of life.

1.3. Principles of opioid analgesic use for patients with acute pain

(1) When facing acute pain, appropriate treatment should be provided to patients to prevent relapse of opioid use disorder due to craving for analgesics.

(2) Acute pain in these patients should be managed in consultation with pain management specialists and addiction treatment experts to assess the level of pain relief provided by medication and prevent the misuse, diversion, or occurrence of withdrawal symptoms associated with opioid analgesics.

(3) For patients already on maintenance therapy: If patients are receiving maintenance therapy with oral methadone solution or buprenorphine/naloxone sublingual tablets, and they experience acute pain or

require surgery, the original methadone solution or buprenorphine/naloxone sublingual tablets should continue to be used in addition to other analgesics.

(4) Surgical anesthesia and medications for these patients should be administered similarly to other patients, with preference given to regional anesthesia techniques. Opioid analgesics may be added as needed for pain relief during surgery, but attention should be paid to the dosage (typically requiring higher doses) and the occurrence of side effects.

(5) For detailed treatment recommendations for acute pain, please refer to Chapter 7: Treatment of Acute Pain.

1.4. Principles of opioid analgesic use for patients with non-cancer chronic intractable pain (Table 1):

(1) This represents the fourth step in the four-stage analgesic ladder for chronic pain management. Opioid analgesics should be considered intermittently only when the patient continues to experience moderate to severe pain after undergoing first, second, and third-stage treatments.

(2) For detailed treatment recommendations for non-cancer chronic pain, please refer to Chapter 9: Pain Management in Patients at Different Stages of Withdrawal.

Table 1: Stepwise model for chronic pain management

The treatment of chronic pain is divided into four levels based on the complexity of the condition:
Stage 1: Self-management Patients engage in self-directed pain management strategies, such as: Self-rehabilitation/exercise. Stress-relief activities (e.g., yoga, tai chi, mindfulness). Self-care for pain-related comorbidities (e.g., chronic disease self-management).
Stage 2: Non-pharmacological treatment Building upon self-management, healthcare providers offer non-pharmacological treatments, such as: Rehabilitation therapy. Psychiatric consultations and psychotherapy. Other non-invasive treatment methods.
Stage 3: Non-opioid pharmacological treatment In addition to the second step, healthcare providers introduce non-opioid medications, including: Antidepressants. Anticonvulsants. Other analgesics.
Stage 4: Multidisciplinary intervention and cautious use of opioids Building upon the third step, a multidisciplinary team addresses pain-related factors, including: Interventional treatments (e.g., nerve blocks, surgery). In exceptional cases, opioids may be used intermittently if the benefits outweigh the risks of addiction, following thorough evaluation.

Note: This stepwise treatment model, published by the U.S. Department of Veterans Affairs in 2017, is currently the most up-to-date and internationally recognized model for chronic pain management. Core Principles: Regardless of the stage, patients are encouraged to actively manage their pain and related comorbidities and to participate in treatment proactively. Opioid use is reserved as a last resort, to be used cautiously and intermittently after rigorous assessment.

2. Glossary

2.1. Opioid analgesics: All medications that act on opioid receptors.

2.2. Opiate drugs: Any drugs directly derived from the opium poppy plant.

2.3. Narcotic analgesics: Drugs that cause mental dullness or sedation upon use.

3. Guidelines for prescribing and dispensing opioid (controlled) drugs

3.1. Physicians and dentists must fill out dedicated prescription forms for controlled drugs classified as Schedule I to Schedule III.

3.2. The dispensing of controlled drugs is restricted to physicians, dentists, pharmacists, or assistant pharmacists. Assistant pharmacists are not authorized to dispense controlled drngs.

3.3. The recipient of Schedule I to Schedule III controlled drugs must sign for them with valid identification.

3.4. Prescriptions for Schedule I and Schedule II controlled drugs are limited to a single dispensing.

4. Precautions when using opioid analgesics

4.1. When using opioid analgesics, common side effects may include nausea, vomiting, constipation, sedation, confusion, and itching. These side effects can be prevented or treated, so if you experience any discomfort, please contact your prescribing physician.

4.2. Sedation and drowsiness are the most common side effects of using these drugs. Most patients experience drowsiness after taking the medication and should avoid driving, operating machinery, or engaging in activities that require alertness. This drowsiness typically diminishes within 7 to 10 days as the body develops tolerance to the medication. If the condition does not improve after this period, inform your physician to discuss the reason.

4.3. Respiratory depression: This is the most serious side effect of opioid analgesics but usually occurs only with high doses or in patients with compromised respiratory function. By gradually adjusting the dosage of opioid analgesics, respiratory depression can usually be avoided. Even if mild respiratory depression occurs, it typically resolves gradually over 1 to 3 weeks of treatment. Long-term use of opioid analgesics for pain management typically does not lead to respiratory depression unless the patient's condition changes (such as worsening respiratory function) or the dosage is increased.

4.4. When opioid analgesics are used concurrently with alcohol or sedatives, there is a risk of overdose, resulting in symptoms such as slurred speech, mood swings, unsteadiness, slow breathing, confusion, cyanosis, coma, or even death. Avoid alcohol consumption while using opioid analgesics.

4.5. When opioids are used as directed by a physician, the risk of addiction is low. However, individuals with a history of addiction to opioids, alcohol (excessive drinking), or other drugs may have a higher risk of addiction.

4.6. Please use opioid medications as directed by your physician, and do not adjust the route or dosage of administration on your own. When reducing the medication, it should be gradually tapered under medical supervision, and sudden discontinuation should be avoided.

4.7. Do not give opioid medications to family members or friends (others) for use.

4.8. After receiving opioid medications, please store them properly and avoid placing them randomly to prevent loss or accidental ingestion by children. Unused medications should be returned to the medical facility where they were prescribed.

4.9. Do not crush extended-release tablets for oral administration, and do not use non-injectable medications for injection.

5. Precautions for home use of individual opioid analgesics

The following information is based on the package insert of each individual medication.

5.1. Morphine (such as immediate-release tablets, extended-release tablets, sustained-release capsules)

(1) Action

Morphine is a potent analgesic used for the relief of severe pain.

(2) Dosage

- For extended-release or immediate-release tablets, swallow whole; do not chew.
- For sustained-release capsules, swallow whole or open the capsule and sprinkle the contents of the small beads into a non-alcoholic cold beverage before swallowing. Do not crush or chew the small beads inside the capsule.

(3) Precautions

- Inform the physician during consultation for evaluation of suitability for use, if you have allergies to morphine, or liver dysfunction, respiratory depression, asthma, heart failure, arrhythmias, head injury, brain tumor, acute alcohol intoxication, seizures, etc.
- Abrupt cessation after continuous use or concurrent use of opioid antagonist may lead to withdrawal symptoms such as tearing, cold sweats, nausea, vomiting, diarrhea, abdominal pain, pupil dilation, headache, insomnia, restlessness, delirium, tremors, muscle and joint pain, respiratory distress, etc.
- Morphine should not be used if there is a possibility of paralytic ileus.

- Drowsiness may occur after taking the medication. Avoid engaging in activities that require concentration or could pose a risk, such as driving or operating machinery.
- The safety of this medication in pregnant or breastfeeding women has not been established. If you are planning to become pregnant, are already pregnant, or are breastfeeding, please inform the physician during consultation for evaluation of suitability for use.

(4) Adverse reactions

Respiratory depression, nausea, vomiting, flushing, palpitations, biliary spasm, constipation, insomnia, headache, hallucinations, urinary retention, itching, urticaria, etc.

(5) Missed dose management

If you are on a regular dosing schedule and miss a dose, take it as soon as you remember. However, if it is almost time for your next dose, skip the missed dose and continue with your regular dosing schedule. Do not take a double dose to make up for a missed one.

(6) Medication storage

Store the medication at room temperature, avoiding exposure to high temperatures or moisture.

5.2. Fentanyl transdermal patch

(1) Mechanism of action

Fentanyl transdermal patch is a potent analgesic. The

medication is absorbed through the subcutaneous microvasculature from the patch, entering the body to produce its analgesic effect. The medication is continuously released from the patch over 72 hours and absorbed into the systemic circulation to provide pain relief.

(2) Instructions for use

- Preparation before use:
  - ☆ The fentanyl transdermal patch should be applied to a clean, intact skin surface on the torso or upper arm. For younger children, the upper back may be a more suitable area.
  - ☆ Before applying the patch, trim the hair at the application site (preferably in an area without hair growth) without shaving to avoid skin abrasion.
  - ☆ Clean the application site with water only. Do not use soap, oils, lotions, or any substances that may irritate the skin or alter its texture.
  - ☆ Once the skin is completely dry, apply the patch.
- Application method:
  - ☆ Remove the fentanyl patch from its sealed packaging (use immediately after removal).
  - ☆ Peel off the protective liner from the patch.
  - ☆ Apply the patch to the skin and press firmly with the palm of your hand for 30 seconds to ensure full contact between the patch and the skin. Pay extra attention to ensure tight adherence to the corners. You may use adhesive tape around the edges of the patch to enhance adhesion.
  - ☆ Wash hands with water after application.

- Patch removal:
  - ☆ Fold the sticky sides together and placed it into the original packaging after using the patches. Do not dispose of them carelessly; return them along with the record sheet to the pharmacy of the medical institution where the patient was treated.
  - ☆ Unused patches should be returned to the pharmacy of the medical institution where the patient was treated.

(3) Precautions

- Before use, check the integrity of the patch. Do not use patches that have been cut, divided, or damaged.
- The patch can be worn continuously for up to 72 hours. After removing a patch, apply the new patch to a different area. Allow several days (approximately one week) before applying a new patch to the same area of skin.
- During bathing, showering is recommended. Avoid applying local heat or soaking the area where the patch is adhered, as this may accelerate the release and absorption of the medication.

(4) Additional information

- Apply the patch to a suitable location as directed by the physician, such as the front chest, back, upper arm, thigh, or other flat areas (placement does not need to correspond to the location of pain).
- After removing the patch, the medication components will remain in the skin for up to 24 hours. The efficacy does not cease upon removal, therefore, there is no need to worry about experiencing pain right after the patch is removed.

- When using a patch for the first time, it takes time to take effect since the medication must be absorbed through the skin. Therefore, oral pain medications are still required within the first 12-24 hours after applying the patch. When transitioning from oral pain medication to patch application, the patch can be applied simultaneously with the last dose of oral pain medication.
- In the case of sudden onset pain, follow the physician's instructions to take other fast-acting pain relievers (such as buccal or sublingual tablets).

(5) Adverse effects:

- Common side effects include slowed breathing, nausea, vomiting, constipation, sedation, and drowsiness. Please record any side effects and discuss them with your physician during appointments.
- If severe side effects such as allergic reactions, difficulty breathing, muscle spasms, persistent chest pain, or irregular heartbeat occur, seek immediate medical attention at the emergency room.

(6) Handling missed doses:

- When realizing a patch change was missed, immediately remove the old patch and apply a new one.
- Do not use a double dose.

(7) Storage instructions

Store in the original, unopened packaging at temperatures below 25°C.

5.3. Oxycodone

(1) Action

Oxycodone is a potent analgesic used for the relief of moderate to severe pain.

(2) Usage

If using extended-release tablets, they must be swallowed whole; do not crush, chew, or dissolve them, as it may result in excessive release of the medication, leading to the risk of fatal doses.

(3) Precautions

- Inform the physician if you have impaired liver or kidney function, severe respiratory depression, asthma, head injury, chronic obstructive pulmonary disease, epilepsy, or suspected paralytic ileus and gastrointestinal obstruction, as the physician needs to assess whether it is safe for you to use.
- After taking the medication, you may feel drowsy or experience decreased blood pressure; avoid engaging in activities that require full attention or could be dangerous, such as driving or operating machinery.
- Inform your physician or pharmacist about any other medications you are taking, especially sedatives, hypnotics, or muscle relaxants.
- The safety of this medication in pregnant women has not been established. Inform your physician if you are planning to become pregnant, are already pregnant, or are breastfeeding, so the physician can assess whether it is safe for you to use.

(4) Adverse effects

Constipation, nausea, drowsiness, vomiting, fatigue, headache, dizziness, abdominal pain, difficulty breathing, increased heart rate, low blood pressure.

(5) Handling missed doses

If taking this medication regularly, take it as soon as you remember if you have missed a dose. However, if it is close to the time for your next dose, take the next dose as scheduled; do not take a double dose or multiple doses within a short period.

(6) Medication storage

Store the medication at room temperature, avoiding exposure to high temperatures or moisture.

5.4. Buprenorphine transdermal patch

(1) Action

The buprenorphine transdermal patch is a potent analgesic. The medication is absorbed through the subcutaneous microvasculature from the patch into the body to produce its effect. The analgesic effect of the patch appears 12-24 hours after application, peaks at around 3 days, and can last up to 96 hours. It is suitable for the relief of moderate to severe pain.

(2) Usage

- Select clean, hairless, and flat skin for application, avoiding areas with large scars. The upper body, particularly the upper back or below the clavicle on the chest, is preferable for application.

- Clean the application site with water, avoiding the use of soap or any other cleansers. The skin must be completely dry before application.
- Immediately apply the transdermal patch after removing it from the packaging, and press firmly with the palm of the hand on the application site for approximately 30 seconds.

(3) Precautions

- Apply new buprenorphine transdermal patches to different skin sites; the same site should not be used for at least 3 weeks before applying a new patch.
- The patch should be worn continuously for up to 4 days and can be changed twice a week at fixed intervals (e.g., Monday morning and Thursday evening).
- Regardless of the strength of the dosage, only one transdermal patch should be used at a time.
- The patch is not affected by bathing, showering, or swimming, but exposure to high heat (e.g., sauna, infrared radiation) should be avoided to prevent excessive drug release.
- Since the patch is a special sustained-release formulation, it should not be cut, as this may damage its effectiveness.
- Since studies have not been conducted on patients under 18 years of age, its use is not recommended for patients younger than this age.
- Use of this patch is prohibited during pregnancy or breastfeeding.

- Serious respiratory depression may occur with this patch; caution should be exercised when using it in patients with respiratory insufficiency.
- Patients may experience dizziness or drowsiness, or blurred or double vision when initiating therapy, changing doses, or when this patch is used concomitantly with other substances affecting mental status (including alcohol, sedatives, tranquilizers, and hypnotics). Patients experiencing these conditions should not drive or operate machinery during patch use or for at least 24 hours after patch removal.

(4) Related side effects

Dizziness, headache, drowsiness, nausea, constipation, localized itching, vomiting, erythema at the patch site.

(5) Medication storage instructions

Store the medication at room temperature and avoid storing it in high temperatures or humid conditions.

5.5. Buprenorphine sublingual tablets

(1) Purpose

Buprenorphine sublingual tablets are potent analgesics absorbed through the sublingual microvasculature for the relief of moderate to severe pain.

(2) Instructions

Place the medication under the tongue for absorption and efficacy. Do not chew or swallow. Follow the dosage and usage instructions provided by the physician.

(3) Precautions

- Inform the physician of kidney disease, head injury, increased intracranial pressure, cardiovascular disease, gastrointestinal disorders, etc., for evaluation of suitability for use.
- Drowsiness may occur after taking the medication. Avoid engaging in activities that require full attention or may pose a danger, such as driving or operating machinery.
- Refrain from alcohol consumption during medication. Inform the physician or pharmacist of any other medications being taken, especially sedatives, hypnotics, antihistamines, etc.
- The safety of this medication in pregnant or breastfeeding women has not been established. Inform the physician if planning pregnancy, currently pregnant, or breastfeeding, for evaluation of suitability for use.
- After taking the medication, wait until it completely dissolves in the oral mucosa before drinking water to gently rinse and swallow, and wait at least 1 hour before brushing teeth.

(4) Related side effects:

Edema, dizziness, drowsiness, weight gain, blurred vision, constipation, dry mouth.

(5) Handling missed doses:

For regular use of this medication, take it as soon as remembered if a dose is missed. However, if it is close to the next dose time, take the next dose directly, avoiding taking double doses within a short period.

(6) Medication storage instructions:

Store the medication at room temperature and avoid storing it in high temperatures or humid conditions.

5.6. Codeine tablets

(1) Purpose:

Codeine is a weak analgesic primarily used for cough suppression and pain relief.

(2) Instructions:

Please follow the dosage and usage instructions provided by the physician. Do not increase the dosage or frequency of administration without the physician's consent.

(3) Precautions:

This medication may cause drowsiness. Do not drive or operate dangerous machinery after taking the medication.

(4) Related side effects:

Side effects are not common but may include constipation, nausea, vomiting, and headache.

(5) Handling missed doses:

For regular use of this medication, take it as soon as remembered if a dose is missed. However, if it is close to the next dose time, take the next dose directly, avoiding taking double doses within a short period.

(6) Medication storage instructions:

Store the medication at room temperature and avoid storing it in high temperatures or humid conditions.

5.7. Tramadol

(1) Purpose:

Tramadol is a weak analgesic.

(2) Instructions:

If it is in extended-release tablet or sustained-release form, it should be swallowed whole and should not be crushed or split.

(3) Precautions:

- When used concurrently with central nervous system drugs (e.g., sedatives, hypnotics), it may enhance sedative effects and pain relief. Therefore, cautious use is advised.
- This medication is contraindicated in patients allergic to its ingredients, as well as in patients with acute alcohol intoxication, sedative, analgesic, or psychotropic drug overdose.
- This medication is not recommended for use in pregnant women. Women who are planning pregnancy or are already pregnant should inform their physician for evaluation of its safety.
- This medication is not suitable for children under 12 years old.

(4) Related side effects:

Dizziness, headache, drowsiness, constipation, nausea, vomiting, dry mouth, gastrointestinal discomfort.

(5) Handling missed doses:

For regular use of this medication, take it as soon as remembered if a dose is missed. However, if it is close to the next dose time, take the next dose directly, avoiding taking double doses within a short period.

(6) Medication storage instructions:

Store the medication at room temperature and avoid storing it in high temperatures or humid conditions.

5.8. Tramadol and acetaminophen combination tablets

(1) Purpose:

This formulation consists of a weak opioid analgesic (tramadol) combined with a centrally acting analgesic (acetaminophen). The synergistic analgesic effects of these two drugs with different mechanisms of action are used to treat moderate to severe pain when non-opioid analgesics are ineffective.

(2) Instructions:

Please follow the dosage and administration instructions provided by your physician. Do not increase the dosage or frequency of medication without your physician's approval.

(3) Precautions:

- Concurrent use with central nervous system medications (such as sedatives, hypnotics) may enhance sedative effects and pain relief. Use with caution.
- This medication is contraindicated in patients allergic to its components, as well as those with acute alcohol intoxication, sedative or analgesic overdose, or psychiatric medication overdose.
- Patients with liver disease should inform their physician during consultation for assessment of use.
- Avoid alcohol consumption while taking this medication. If you have a habit of consuming alcohol in large quantities, please inform your physician beforehand.
- This medication is not recommended for pregnant women. If you are planning to become pregnant or are already pregnant, inform your physician during consultation for assessment of suitability for use.
- This medication is not suitable for children under 12 years of age.
- If you are concurrently taking analgesic, antipyretic, or cold medications containing acetaminophen, inform your physician or pharmacist during consultation and do not exceed the recommended dosage.

(4) Related side effects:

Dizziness, headache, drowsiness, constipation, nausea, vomiting, dry mouth, gastrointestinal discomfort, rash, ringing in the ears, etc.

(5) Handling of missed doses:

If you regularly take this medication, take it immediately upon remembering a missed dose. However, if it is close to the time of your next dose, simply take the next scheduled dose, and do not take a double dose within a short period.

(6) Storage instructions:

Store the medication at room temperature, avoiding exposure to high temperatures or humidity.

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Chapter 14

Prevention/Management of Opioid-related Side Effects and Reduction/ Discontinuation of Opioid Use

1. Introduction

1.1. In patients with suspected opioid use disorders (hereinafter referred to as "OUD patients"), when simultaneously experiencing acute or chronic pain requiring the use of opioid medications for pain management, attention should be paid to the prevention and management of drug-related side effects.

1.2. Opioid receptors are distributed throughout the body. The analgesic effect of opioid medications primarily occurs through their action on the central nervous system and opioid receptors associated with pain relief. However, side effects occur through their action on opioid receptors not directly related to pain relief.

2. Factors affecting opioid metabolism or efficacy in OUD patients

2.1. Coexisting medical conditions (comorbidities):

(1) Hepatic diseases: such as hepatitis, cirrhosis.

(2) Pulmonary diseases: such as pulmonary tuberculosis.

(3) Cardiac diseases: such as endocarditis.

(4) Others: such as cellulitis, sepsis.

2.2. Psychiatric/psychological comorbidities:

(1) Anxiety disorders.

(2) Depression disorders.

(3) Personality disorders.

(4) Other psychiatric disorders: such as post-traumatic stress disorder.

2.3. Concurrent use of abused substances:

(1) Alcohol.

(2) Stimulants.

(3) Cannabis.

(4) Hallucinogens.

(5) Ketamine.

(6) Others.

2.4. Medications taken for coexisting medical or psychiatric conditions, such as:

(1) Antiviral drugs.

(2) Antidepressants.

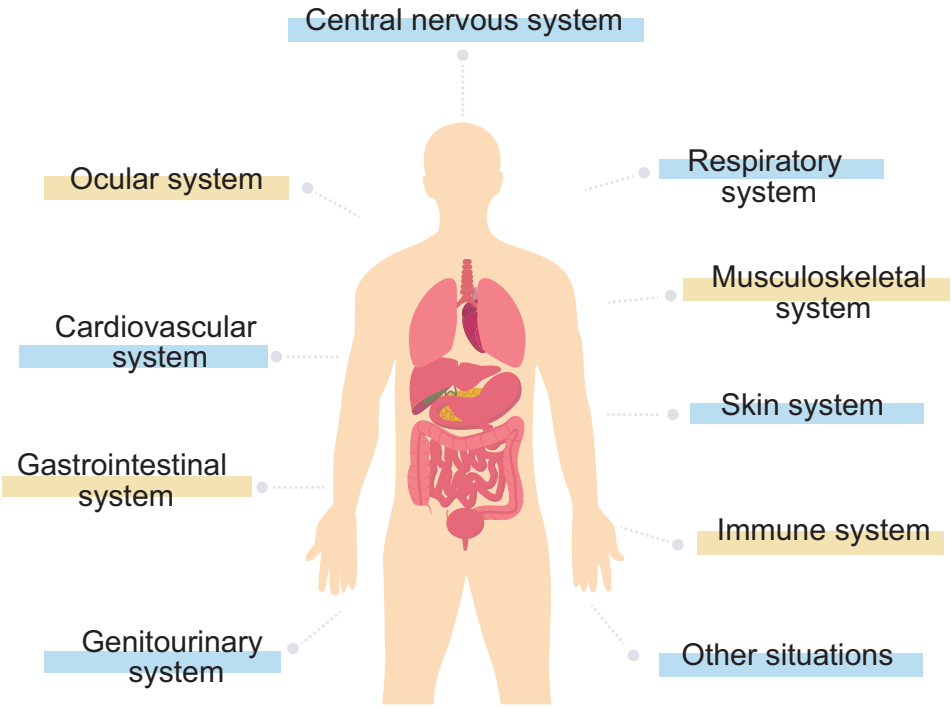
(3) Antipsychotics.

(4) Sedatives and hypnotics.

(5) Antiepileptics.

3. Possible side effects of opioid use

The use of opioids may result in the following side effects on various organ systems:



3.1. Central nervous system

(1) Euphoria.

(2) Drowsiness, sedation, and sleep disorders.

(3) Hallucinations.

(4) Restlessness and agitation.

(5) Dizziness, headache, and even seizures.

(6) Aberrant drug-related behavior.

(7) Delirium.

(8) Depression.

(9) Cognitive impairment (including memory, attention, decision-making, and responsiveness).

(10) Hyperalgesia.

3.2. Ocular system

(1) Pupillary constriction.

(2) Pupillary constriction even in dim light.

(3) Pupillary dilation in cases of cerebral hypoxia.

3.3. Respiratory system

(1) Respiratory depression, the most severe adverse reaction, which can also result from drug overdose.

(2) Increased risk of respiratory depression and death when taken concomitantly with benzodiazepines, other central nervous system depressants, or alcohol.

3.4. Cardiovascular system

(1) Hypotension.

(2) Peripheral edema.

3.5. Gastrointestinal system

(1) Constipation, nausea, and vomiting.

(2) Delayed gastric emptying.

3.6. Genitourinary system

(1) Urinary retention.

(2) Decreased levels of male and female sex hormones in the blood.

(3) Passage through the placenta and secretion into breast milk.

3.7. Immune system

Prolonged use may suppress the immune system.

3.8. Musculoskeletal system

(1) Skeletal muscle rigidity, leading to respiratory difficulty, especially with intravenous injection of fentanyl.

(2) Osteoporosis.

3.9. Skin system

(1) Itching.

(2) Can occur with intravenous, intramuscular, and subcutaneous injections.

(3) Can also occur with intrathecal or epidural administration.

3.10. Other considerations

(1) Tolerance.

(2) Physical dependence.

(3) Substance use disorder/addiction.

(4) Death.

4. Prevention and treatment of common side effects

4.1. Constipation

(1) Explanation: Opioids increase smooth muscle tone in the gastrointestinal tract, reduce gastrointestinal motility, and slow gastric emptying, leading to constipation.

(2) Prevention:

- Patients regularly taking opioids should be almost universally prophylaxed against constipation, which does not develop tolerance and may persist long-term.
- Prophylactically administer stool softeners or stimulant laxatives, adjusting doses when opioid dosages increase.
- Encourage adequate daily fluid intake.
- Encourage daily intake of high-fiber fruits and vegetables.
- Encourage regular physical activity to promote bowel motility.

(3) Management when constipation occurs:

- Rule out other causes such as effects of other medications or tumor-induced obstruction.
- Administer mild laxatives.
- Consider adjunctive antiemetic therapy and reduce opioid usage if necessary.

4.2. Nausea and vomiting

(1) Explanation: Opioids can directly affect the vomiting center in the brainstem or induce nausea and vomiting through the vagus nerve.

- Nausea and vomiting are common side effects of opioid use, typically occurring early in the usage period (within the first week) or when the dosage is increased.
- They are less frequent in regular users.

(2) Management when nausea and vomiting occur:

- Rule out other causes.
- Administer antiemetics.
- In severe cases refractory to other palliative measures, consider steroid therapy.
- Consider adjunctive analgesic therapy and reduce opioid usage if necessary.

4.3. Respiratory depression

(1) Explanation:

- Opioids cause respiratory depression by inhibiting the respiratory center in the brainstem.
- Patients with compromised cardiopulmonary function are at increased risk of this side effect.

(2) When respiratory depression (less than 10 breaths/min) occurs:

- Identify the cause of this condition, such as the concurrent use of other sedatives by the patient.
- Reduce the dosage of opioids.
- Increase respiratory function monitoring.
- If necessary, administer naloxone intravenously to

reverse opioid-induced respiratory depression, and provide other non-sedative analgesics.

4.4. Sedation

(1) Explanation: Opioids cause sedation either through direct action on the central nervous system or by causing the accumulation of carbon dioxide in the blood due to respiratory depression.

(2) When sedation occurs:

- Identify other direct or indirect causes of sedation, such as the concurrent use of other sedatives by the patient.
- Incorporate non-pharmacological pain management methods and reduce the opioid dosage.

4.5. Delirium/agitation

(1) Explanation: Delirium or agitation may occur at the initial stages of medication or due to the long-term accumulation of certain opioid metabolites in the body.

(2) When delirium/agitation occurs:

- Identify and differentiate the causes of delirium/agitation (infections, electrolyte imbalances, systemic diseases, central nervous system disorders, or the influence of other medications), and provide appropriate treatment.
- Consider using other non-opioid analgesics and reduce the opioid dosage.

(3) When delirium/agitation persists: Consult with a neurologist or psychiatrist for evaluation and treatment recommendations.

4.6. Cognitive impairment

(1) Explanation: Opioids affect cognitive function either through direct action on the central nervous system or by causing the accumulation of carbon dioxide in the blood due to respiratory depression.

(2) Cognitive impairment rarely occurs with the continuous use of a stable opioid dosage for more than two weeks.

(3) This side effect may occur at the initial stage of medication or when the dosage is increased.

(4) Cognitive impairment may also occur when benzodiazepines are used concurrently.

(5) Identify the cause and provide appropriate treatment.

4.7. Itching

(1) Explanation:

- Opioids administered via non-central nervous system routes may cause itching due to the release of histamine in body tissues or cells. When administered via central nervous system routes (e.g., intrathecal or epidural), opioids may cause abnormal sensations of itching by altering the central nervous system's pain modulation mechanisms.
- If itching occurs after drug administration and is accompanied by rash, urticaria, asthma, or decreased blood pressure, it indicates an allergic reaction to the drug. Administration should be stopped immediately, provide supportive therapy, and investigate other potential allergic causes.

(2) When itching occurs:

- For itching caused by non-central nervous system administration, antihistamines can be given.
- For itching caused by central nervous system administration, this route of administration should be stopped and replaced with an alternative route.
- Consider switching to another opioid.
- If necessary, administer low-dose naloxone intravenously to counteract the opioid's side effects.

4.8. Urinary retention

(1) Explanation:

Urinary retention: Opioids can enhance the contraction strength of the bladder sphincter, making urination difficult, and this side effect is more common in males.

(2) This side effect (urinary retention) usually only occurs in the initial stage of opioid use (within the first week) and gradually diminishes thereafter.

4.9. Others (relatively rare)

Seizures, muscle spasms, and convulsions: These may be related to the accumulation of certain opioid metabolites in the body. In such cases, the dosage should be reduced, or a switch to a different medication should be considered.

5. Precautions for reducing or discontinuing opioids in OUD patients

5.1. Timing for reducing or discontinuing opioids

(1) When the patient's condition improves or when opioids show no significant therapeutic effect, the opioid dosage can be reduced or discontinued.

(2) For patients on long-term opioid use, if severe side effects occur due to opioid overdose, a rapid reduction or discontinuation of opioids can be considered; however, it is recommended to make these adjustments during hospitalization.

(3) If there is a possibility of opioid diversion, the prescription dosage of opioids can be reduced. If it is confirmed that the patient is not using opioids, the prescription can be directly stopped.

5.2. Considerations for long-term opioid users when reducing or discontinuing opioids

(1) The reduction or discontinuation of opioids should only be initiated with the knowledge and consent of both the physician and the patient. At this time, consulting addiction treatment specialists is advisable.

(2) Each patient has a unique situation in terms of physical (disease), psychological (mental, emotional, spiritual), and family social support. Therefore, a tailored tapering plan is necessary, along with providing consultation channels and services.

(3) While reducing the dosage, alternative treatments for the related pain should be provided to the patient,

and the results of pain management should be continuously evaluated.

(4) During the opioid tapering process, healthcare providers should maintain contact with the patient to sustain mutual trust and promptly identify any side effects.

5.3. Management of common situations during opioid tapering

(1) Patients may experience withdrawal symptoms during opioid tapering. It is important to inform the patient that this is a known side effect and provide appropriate treatment.

(2) If the patient experiences pain during this period, non-opioid analgesics or methods should be prioritized for treatment.

(3) Anxiety is often a significant factor interfering with tapering. Identifying and treating anxiety is essential.

(4) During the tapering period, the patient's alcohol consumption may increase. It is important to monitor for excessive alcohol use to avoid alcohol use disorder or alcohol-related physiological issues.

(5) For patients with a history of substance use disorders, methadone or buprenorphine can be considered to replace the original opioids. Consultation with addiction treatment specialists is necessary for providing appropriate treatment.

(6) For patients with cognitive impairment or those regularly using benzodiazepine sedatives, consultation with addiction treatment specialists is recommended for evaluation and appropriate dosage adjustment.

5.4. Understanding withdrawal symptoms after reducing or discontinuing opioids

(1) Rapid reduction or discontinuation of opioids after long-term use can lead to opioid withdrawal symptoms.

(2) The severity and duration of withdrawal symptoms vary among individuals and are related to the dosage, duration of use, and whether the medication is abruptly discontinued or an antagonist is used.

(3) Early withdrawal symptoms typically involve physical discomfort, while later stages often manifest as psychological symptoms.

(4) Common withdrawal symptoms include muscle aches, chills, flu-like symptoms, runny nose, dilated pupils, goosebumps, yawning, sweating, tearing, tremors, anxiety or restlessness, bone and joint pain, nausea and vomiting, abdominal cramps or diarrhea, insomnia, depression, mood instability, and drug cravings.

(5) For short-acting drugs like morphine, heroin, and oxycodone, withdrawal symptoms usually appear around 12 hours after the last dose, peak between 24-48 hours, and gradually subside within 3-5 days.

(6) Buprenorphine withdrawal timeline:

- Initial phase: Approximately 6-12 hours after the last dose.
- Peak phase: Approximately 2-5 days after the last dose.
- Duration: Approximately 3-4 weeks after the last dose.

(7) Methadone withdrawal timeline:

- Initial phase: Approximately 24-36 hours after the last dose.
- Peak phase: Approximately 3-8 days after the last dose.
- Duration: Approximately 3-6 weeks after the last dose.
- Post-acute phase (rare cases): Several months to 2 years after the last dose.

(8) Withdrawal symptoms are rarely fatal, though a few cases of death have been reported.

(9) Sudden discontinuation or rapid dose reduction is not recommended as it can cause severe withdrawal symptoms and increase the patient's craving for opioids, potentially leading to or exacerbating substance use disorders.

5.5. Conditions for successfully reducing or discontinuing opioids in a treatment framework

(1) Team-based care model

- Implement a team-based care model that includes patient education, assistance, communication, and follow-up care. This approach enhances team flexibility and reduces staff fatigue.
- Establish a systematic diagnostic and follow-up model.

(2) Full disclosure, communication, and shared decision-making

- Inform the patient of any changes in the treatment plan in advance.

- Ensure that the patient understands, agrees to, and actively participates in the reduction or discontinuation of opioids after full disclosure and communication.
- Ensure that the treatment team is adequately staffed and resourced to provide patient education, assistance, communication, and follow-up care.

(3) Follow-up and communication mechanism

- Clearly explain the purpose, methods, and content of follow-up to the patient.
- Provide the patient with multiple contact methods and support mechanisms that are convenient for the patient to use.

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Chapter 15

Management of Urinary System Disorders and Pain Caused by Long-Term Abuse of Ketamine

1. Introduction

1.1. In our country, ketamine is classified as a third-class controlled substance when used for medical purposes and as a third-class illicit drug for non-medical purposes.

1.2. The ketamine commonly seen is in the form of ketamine hydrochloride, appearing as a white powder.

1.3. Regarding the central nervous system, ketamine, at low doses, induces temporal and spatial distortion, hallucinations, and mild dissociation from the immediate environment. At high doses, patients may completely dissociate from reality, experiencing vivid visual and auditory hallucinations, but not necessarily in a pleasant state.

1.4. When used for surgical anesthesia, ketamine induces unconsciousness accompanied by elevated blood pressure, increased heart rate, and analgesia.

1.5. Non-medical use of ketamine is illegal in our country. It is also classified as a substance prone to abuse in various countries worldwide.

1.6. Common symptoms of short-term or acute ketamine use (abuse) include dizziness, confusion, elevated blood pressure, and rapid heart rate. Long-term use often leads to symptoms related to bladder dysfunction, such as frequent urination, difficulty urinating, painful urination, urinary incontinence, and other symptoms (such as lower abdominal pain or perineal pain).

1.7. Ketamine not only affects the bladder but also poses toxicity to the kidneys and ureters, leading to hydronephrosis and renal failure.

1.8. Ketamine abusers often simultaneously use multiple drugs, substances, and substances of abuse (including alcohol, sedatives, and other addictive drugs).

2.Toxic effects of ketamine on the urinary system

2.1. Ketamine can damage the urinary system, particularly the bladder, leading to various irritative symptoms, causing cystitis and triggering related symptom clusters.

2.2. Typical complaints from patients include "painful urination and decreased urine output," symptoms very similar to interstitial cystitis, usually occurring after 2 years of ketamine abuse.

2.3. Long-term use of ketamine can lead to cystitis, with the bladder shrinking due to fibrosis, resulting in frequent urination, urinary incontinence, lower abdominal pain. In some patients, reflux of the ureterovesical junction may affect the upper urinary tract system, causing ureteritis,

ureteral stricture, renal edema, and even retroperitoneal fibrosis.

3. Medical examinations and tests for the disease

3.1. Bladder voiding diary: Ask patients to record urinary symptoms and voiding problems.

3.2. Routine clinical urine tests: Blood in the urine may be present, infection should be ruled out, but generally, there is no bacterial infection.

3.3. Abdominal X-rays, ultrasound examinations, retrograde pyelography, and if necessary, CT scans can be arranged.

3.4. Urine cytology to rule out malignant problems.

3.5. Cystoscopy, with biopsy if necessary for further examination.

3.6. Urodynamic studies including bladder function and volume assessment, videourodynamic studies, and voiding cystourethrography to rule out vesicoureteral reflux.

4.Common test results

4.1. Cystoscopic examination may reveal inflammatory changes in the bladder, decreased bladder capacity, mucosal vascular engorgement with easily provoked bleeding, inflamed ulcerated gross appearance, and pinpoint bleeding in severe cases.

4.2. Computed tomography scans, retrograde pyelography, and ultrasound examinations may reveal thickening of the bladder wall and increased surrounding vasculature (indicative of chronic inflammatory response of the bladder wall), unilateral or bilateral renal deformation edema, ureteral wall thickening or narrowing and stricture.

4.3. Urodynamic studies may reveal decreased bladder volume and detrusor overactivity even at low bladder volumes (resulting in urinary frequency).

5. Treatment of the disease

5.1. Cessation of ketamine use

Treating symptoms of the urinary system caused by ketamine (including cystitis) is extremely challenging, and cessation of ketamine use is fundamental. However, getting patients to stop using ketamine is difficult. Because ketamine has analgesic effects, it can suppress the bladder pain caused by ketamine cystitis. Therefore, when ketamine use is discontinued, patients may experience severe bladder pain symptoms. Without more effective analgesics, this may drive patients to use ketamine as a means of controlling bladder pain. Patients will fall into a vicious cycle of discontinuing ketamine, failing to control pain and urinary symptoms, symptom recurrence, and reusing ketamine. Relevant research reports indicate that up to 50% of users' symptoms partially improve after successful cessation of ketamine use. Frequent urination is the first symptom to improve.

5.2. Treatment of dependence and withdrawal symptoms

Compared to other substances such as alcohol and opioids, ketamine has a lower addictive potential. However, a small number of patients may still develop dependence after frequent and prolonged use. These patients often exhibit compulsive use behavior and may experience anxiety-based withdrawal symptoms when attempting to stop using, including restlessness, tremors, sweating, and palpitations. Timely administration of anti-anxiety or antidepressant medications can help alleviate discomfort associated with discontinuing ketamine use.

5.3. Pain management

(1) Due to the inflammatory response caused by ketamine in the urinary tract, similar to interstitial cystitis, anti-inflammatory drugs such as nonsteroidal anti-inflammatory drugs (NSAIDs) and corticosteroids can be used in treatment. If there is an infection, antibiotics may also be necessary.

(2) Ketamine itself has analgesic properties, and when discontinued after long-term abuse, it may cause pain similar to withdrawal symptoms. Analgesic drugs such as acetaminophen or even tramadol can be used temporarily to relieve pain during the initial stages of ketamine withdrawal. Other opioid medications (including weak and strong opioids) are not recommended in this situation.

5.4. Intravesical or bladder wall injection therapy

(1) Studies suggest that intravesical instillation of glycosaminoglycans, such as hyaluronic acid or chondroitin sulfate, can promote healing of urothelial cells and exert their barrier function. However, more evidence is needed to support this approach.

(2) Another literature report suggests that bladder wall injection of botulinum toxin after bladder hydrodistension via cystoscopy can also improve symptoms. Again, this approach requires more evidence to support its efficacy.

5.5. Surgical therapy

In severe cases of ketamine cystitis, where the bladder becomes thickened/fibrotic and less compliant, leading to bladder ureteral reflux and upper urinary tract damage, increasing the risk of chronic kidney failure, surgical intervention may be necessary. Surgical options may include augmentation cystoplasty using a segment of the intestine to increase bladder capacity or bladder replacement with a segment of intestine.

5.6. Treatment of psychiatric comorbidities

In addition to substance abuse, patients with concurrent psychiatric disorders should also receive treatment. Depression, anxiety, and adjustment disorders are common psychiatric comorbidities in ketamine abusers. Treating physicians should carefully assess the causal relationship between these comorbid disorders and ketamine use and refer to a psychiatrist for assistance in diagnosis and treatment.

5.7. Psychological therapy and family support

The following psychological therapies can reduce patients' cravings for ketamine:

(1) Cognitive-behavioral therapy.

(2) Mindfulness therapy.

(3) Acceptance and commitment therapy.

(4) Motivational interviewing.

(5) Relaxation training.

(6) Art and music therapy.

(7) Involvement and support from family members.

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Chapter 16

Nursing Care for Patients with Substance Use Disorders and Chronic Pain

1. Introduction

1.1. Pain, a sensation all of us have experienced at some point, but its impact extends far beyond momentary discomfort. It reaches into every corner of our lives, from personal daily activities to the broader social environment. However, for patients with substance use disorders(SUD), pain is not just a sensation; it represents a series of complex challenges. These challenges involve not only physical conditions but also interplay with psychological, social interactions, and treatment modalities, adding to its complexity.

1.2. SUD is a complex health issue involving uncontrollable use of alcohol, drugs, or other substances, resulting in significant impairments in life functioning such as health problems, disabilities, and failure to fulfill major responsibilities. The causes of SUD are diverse, involving genetics, environment, and individual behaviors. Common types of SUD include alcohol use disorder, opioid use disorder, and others.

1.3. Pain is not just a matter of personal experience; it deeply affects social structures. From work performance to family life and daily social activities, pain can become a barrier, making pain management in the SUD population relatively important.

1.4. In our society, there is often misunderstanding about pain, seeing it as a part of life that must be endured or tolerated rather than a health condition that requires attention and treatment. This mindset not only limits the seeking of effective pain treatment but also adds to the psychological and social burden associated with pain.

2. Principles of nursing care for patients with suspected substance use disorder and chronic pain

2.1. Pain is a highly subjective and distressing condition. When patients suffer from chronic, intractable pain that remains unresponsive to other pharmacological and non-pharmacological treatments, long-term use of opioid analgesics may be necessary to alleviate pain and improve their quality of life. However, when such patients are suspected of having SUD, their pain issues still require appropriate care.

2.2. To alleviate pain in patients suspected of having SUD, healthcare professionals will accurately assess and understand that addiction is influenced by the patient's physiological (illness), psychological, social, and environmental factors.

2.3. Patients with SUD may be less responsive to interpersonal communication. At such times, only by maintaining good communication based on established trust can effective communication be maintained. Therefore, healthcare

professionals should maintain an open and empathetic attitude when talking to patients.

2.4. For patients with suspected SUD and chronic intractable pain, healthcare professionals will conduct a detailed assessment of the source of their pain, document their medication experiences, types and sources of opioid drugs that have been abused, confirm whether they have received adequate treatment in the past, and understand their current medication use.

2.5. Healthcare professionals will use various methods to assess pain, including having in-depth conversations with patients, observing their body language and facial expressions, and conducting necessary physical examinations and diagnostic tests. They will balance the use of analgesics with the risk of drug dependence, provide appropriate monitoring, and select non-addictive analgesics. Even if the specific cause of pain cannot be determined temporarily, healthcare professionals will take patients' pain experiences seriously and seek the best treatment options.

2.6. Integrated care for pain management:

(1) Role of multidisciplinary teams: Integrate experts from different professional fields, such as physicians (multiple specialties), nurses, psychologists, physical therapists, etc., to develop and implement pain management plans for patients.

(2) Individualized treatment plans: Develop personalized treatment plans based on each patient's specific circumstances, including medical history, pain characteristics, and personal preferences.

(3) Psychological and social support: Emphasize the mental health and interpersonal support of patients,

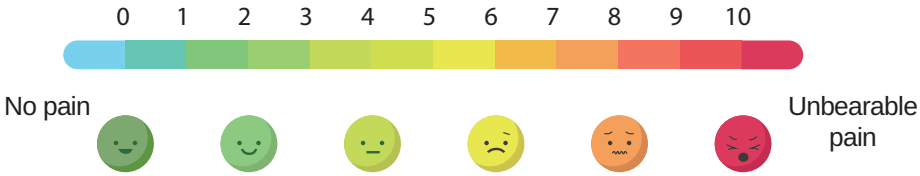
providing necessary emotional support and resources, including family involvement and the utilization of community resources.

(4) Ongoing assessment and adjustment: Continuously assess the patient's responses and progress through regular evaluations, and make timely adjustments based on their feedback and treatment outcomes.

3. Patient self-care

3.1. Pain is a highly subjective unpleasant sensation or emotion. Simply by voicing your pain, most pain can be relieved: Pain, as a personal experience, is unique to each individual. It is not just physical discomfort, but may also be accompanied by emotional distress. Being brave enough to express and describe your pain is the first step to relief. If you feel any discomfort or issues, please inform healthcare professionals of your pain level for proper management.

(1) Please use the following pain self-report scale to express the intensity of pain.



Note: The assessed pain may include: at rest, during activity, at worst pain, at least pain, after medication, after treatment; or the total average within a day.

(2) Please provide pain-related information: including location, characteristics, intensity, response during pain, frequency, duration and peak time of pain, factors exacerbating or relieving pain, physiological and psychological impacts caused by pain.

3.2. Safe use of pain medications: There are often concerns among the public about the use of pain medications. In fact, according to research, the likelihood of addiction from analgesic medications (opioids) is relatively low. Pain medications do not affect the healing of surgical wounds. Therefore, there is no need to endure pain. Before using any pain medication, please consult your doctor and use the pain medication as directed by your doctor.

3.3. Non-drug treatments options: In addition to medication therapy, you can also choose non-drug treatments that are suitable for you. For example, deep breathing and muscle relaxation techniques can help relax the body, while meditation can promote mental tranquility. Acupressure massage, heat or cold therapy are effective methods for relieving muscle tension and pain. In addition, aromatherapy, listening to music, watching TV, or engaging in religious activities such as prayer or chanting can effectively distract attention and reduce pain.

3.4. Utilizing family or social support resources is crucial. You can share your feelings of pain with family, friends, or peers, participate in activities or workshops with support groups to gain emotional support and pain management knowledge.

3.5. Pay attention when using opioids:

(1) Please use opioids as directed by your doctor and observe the analgesic effect of opioids. Oral opioids

take about 30 minutes, and injections take about 5 minutes to achieve pain relief.

(2) Opioids may have side effects, but most side effects can be prevented or managed. If you experience side effects such as nausea, vomiting, dizziness, or changes in consciousness, please inform healthcare professionals for assistance.

3.6. Self-care techniques and lifestyle changes you can learn:

(1) Pain management strategies:

- Improve posture: Maintain an upright stance while standing or sitting.
- If overweight, consider joining a weight management program to reduce body burden.
- Practice deep breathing, meditation, mindfulness, or other activities that relax the mind.
- Participate in pain management courses and join patient support groups to share experiences and receive support from others.

(2) Daily activities:

- Ensure adequate sleep to support body recovery.
- Eat healthy foods, including plenty of fruits and vegetables.
- Quit smoking and limit alcohol intake to reduce stress on the body.
- Establish a regular exercise routine such as walking or swimming.
- Participate in activities like yoga, tai chi, or dancing, which help stretch muscles and alleviate pain.

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Chapter 17

Patient-Provider Communication and Patient Self-Care

1. Introduction

Managing chronic pain in patients with substance use disorders is difficult and time-consuming. The success depends on whether detailed explanations are provided, communication is established between doctors and patients on the following issues, and joint decisions are made regarding patient self-care and fostering healthy lifestyles. The outline is as follows:

1.1. Content of doctor-patient communication and explanation

(1) What are the cause of pain and risk factors?

(2) What are the treatment of comorbid mental disorders?

(3) What is the relationship between pain and substance use disorders?

(4) How does the patient express their pain?

(5) Introduction to common pain relief strategies and methods. (Including acute and chronic pain)

(6) What are the medications for pain treatment. efficacy, side effects, pharmacological interactions, and addictiveness?

(7) What are some care methods for acute or sudden pain?

1.2. Patient self-care and cultivation of healthy lifestyles

(1) Understand the condition and treatment plan, and actively cooperate with it.

(2) Cultivate a healthy lifestyle

- Cultivate exercise habits (physical activity).
- Maintain a balanced and healthy diet (nutrition).
- Maintain good sleep quality (restorative sleep).
- Release stress or enhance resilience (stress management).
- Maintain a positive attitude (positive social connections).
- Avoid using harmful substances (stay away from hazardous substances).

2. Patient-Provider communication

2.1. Causes of pain?

(1) What are the causes of pain and factors leading to chronicity?

(2) How to prevent or improve it?

2.2. What are the co-existing mental disorders (comorbidities)?

(1) What are common comorbid mental disorders?

(2) What are the assessment of comorbid mental disorders?

(3) What are the treatment of comorbid mental disorders?

2.3. Relationship between pain and substance use disorders?

(1) What are the causal relationship between pain and substance use disorders?

(2) What are the assessment of substance use disorders?

(3) What are the treatment of substance use disorders?

2.4. Expression of pain?

(1) What are common methods and forms of assessing pain severity?

(2) How to accurately and fully express feelings of pain?

2.5. Introduction to common pain relief strategies and methods (including acute and chronic pain)?

(1) What are the goals and strategies of pain management? Improvement of daily functioning?

(2) What are the treatment of physical pain-related conditions?

(3) What are the support and treatment for psychological/mental disorders?

(4) How to strengthening family/social support?

(5) Who are possible team members and their roles in treatment according to the treatment modality?

2.6. What medications are used for pain treatment? Efficacy? Side effects? Interactions? Addictiveness?

(1) Acetaminophen and nonsteroidal anti-inflammatory drugs?

(2) Anxiolytics?

(3) Antidepressants?

(4) Antiepileptic drugs?

(5) Opioid medications?

(6) Other medications?

(7) What are the selection of dosage forms and doses?

(8) What are the side effects?

(9) What are the considerations regarding analgesic effects, addictiveness, and safety?

(10) Will there be false positives when undergoing urine testing by law enforcement agencies while receiving opioid medication?

2.7. Care methods for acute or sudden pain?

(1) What are the principles of treatment?

(2) What are the considerations when using medications?

(3) What are the considerations during surgery?

3.Pain education and health promotion

3.1. Patient self-care

Caring for patients with suspected substance use disorders and chronic pain can be difficult and time-consuming. In treatment, patient self-care is particularly important. It is recommended that patients:

(1) Fully understand their own condition and its complexity.

(2) Actively participate in various treatments provided by hospitals, including:

- Prevention and treatment of substance use disorders.
- Prevention and treatment of acute and chronic pain.

- Pay attention to medication safety.
- Seek assistance promptly when needed.

3.2. Cultivation of healthy lifestyles

Cultivating healthy habits can help reduce pain and improve substance use disorders.

(1) Cultivate exercise habits (physical activity)

Moderate exercise is very important for individual health. Patients may reduce their activity and exercise to avoid triggering pain, but in the long run, lack of exercise can lead to more physical discomfort and hinder pain reduction. Moderate exercise can reduce pain and lower levels of depression and anxiety.

- Benefits of exercise:

☆ Exercise can activate pleasurable chemicals in the brain, stabilizing mood.

☆ Exercise can strengthen muscles and increase joint flexibility, relieving muscle tension and reducing pain.

☆ Exercise helps maintain a healthy weight and body posture, avoiding joint strain due to weight or posture.

☆ Exercise can enhance cardiovascular function, improve blood flow and oxygen supply to bodily tissues and organs, reduce inflammation in pain areas, and alleviate pain.

☆ Overall, appropriate exercise can improve both mental (mood enhancement) and physical (physical health) conditions, mitigate the impact of pain, reduce pain, and lower levels of depression and anxiety.

- Choosing suitable exercise:
  - ☆ Discuss with a physician to determine suitable exercises based on individual conditions, and adjust the intensity of exercise based on one's physical condition and improvement in pain.
  - ☆ Common suitable exercises include walking, swimming, dancing, aerobic exercise, yoga, and tai chi.
  - ☆ Participating in rehabilitation therapy provided by hospital rehabilitation departments and continuing to practice at home after discharge is also a good option.

(2) Balanced and healthy diet (nutrition)

Although the relationship between diet and pain is not very clear, certain foods can increase the body's inflammatory response and worsen pain. For those suffering from chronic pain, adjusting dietary habits can be helpful in pain relief and beneficial to health. The following recommendations are suggested:

- Eat plenty of fresh fruits, vegetables, whole grains, and fish. Consider adopting a Mediterranean diet and increasing intake of probiotics.
- Reduce consumption of foods that can enhance inflammatory responses, such as sugar, carbohydrates, fried foods, and food additives.
- Reduce intake of excessively sweet, salty, sour, spicy, oily, or hot foods.

(3) Maintaining good sleep quality (restorative sleep)

Pain can make it difficult to fall asleep, and insufficient sleep can worsen pain, forming a vicious cycle between the two. Maintaining good sleep quality is

crucial in the treatment of pain. When experiencing difficulty falling asleep, try the following methods:

- Enhance physical health, maintain a pleasant mood, and adopt a positive outlook on life (this is most important).
- Balance work and rest, reduce life stress, and maintain appropriate levels of exercise and a healthy diet every day.
- Create a suitable sleeping environment: Avoid placing TVs and phones in the bedroom. Keep the room dark during sleep, ensure the bed and pillows are comfortable, and maintain a comfortable room temperature.
- Maintain a consistent sleep schedule: Try to sleep and wake up at the same time every day to maintain the consistency of our biological clock. Avoid lying in bed after waking up, and try to avoid napping during the day.
- Avoid consuming stimulating beverages such as tea, coffee, and alcohol before bedtime.
- Engage in calming activities before bedtime such as reading comforting books, listening to soothing music, and taking a warm bath to help fall asleep and maintain good sleep quality.
- Relaxation, deep breathing, and meditation can calm emotions and help with falling asleep.
- If necessary, seek assistance from a physician for sleep aid medications or further investigation of factors disrupting sleep such as sleep apnea or cardiopulmonary diseases, and receive appropriate treatment.

(4) Stress release or building resilience (stress management)

Enduring excessive internal stress for a prolonged period can trigger or exacerbate pain. Moreover, prolonged internal stress can lead to fatigue, memory impairment, impatience, irritability, and increased sensitivity to pain. Reducing internal stress can help alleviate pain. You can try the following methods:

- Stress release:

☆ Examine your daily routine to see if it's filled with responsibilities and scheduled activities.

☆ Rearrange pending tasks based on your energy levels.

☆ Schedule time for exercise, leisure, and self-care.

☆ Practice relaxation techniques. For example:

◎ Set aside tasks, sit down, and take a few slow deep breaths (slow inhales and exhales) several times.

◎ Perform relaxation exercises: Take off restrictive clothing and sit or lie down comfortably for a rest, even taking a short nap if necessary.

- Building resilience:

Within one's physical capacity, expanding knowledge and skills can effectively enhance resilience.

- Maintaining a pleasant mood every day:

We can use our senses to experience the beauty around us. For example:

☆ Appreciating the beauty of nature.

☆ Enjoying the scent of flowers.

☆ Listening to elegant music.

☆ Tasting delicious food and desserts in moderation.

☆ Embracing loved ones.

(5) Maintaining a positive attitude and seeking assistance

- Maintaining a positive attitude:

☆ Enriching the Soul's "Bank Account": Similar to a bank account or a health account, individuals have a soul's "bank account" filled with joyful/happy memories. Filling this inner account with numerous joyful/happy memories can strengthen the soul's resilience, aiding in overcoming life's challenges and physical discomfort.

☆ Cultivating a grateful heart: Daily meditation or expressing/narrating gratitude for people and events can help strengthen personal emotional resilience and garner support from others, leading to a more fulfilling life.

☆ Nurturing contentment and appreciation: Spend a little time each day to reflect and appreciate the beauty of people, events, and objects around oneself can change one's mood and strengthen the soul's "bank account."

- Seeking assistance:

Having support from family and friends can greatly assist in the treatment of patients with non-cancer chronic pain. Explanations from medical professionals, can help family members and caregivers understand the patient's illness, support and assist in caring for the patient, and if necessary, seek assistance from community resources.

(6) Self-care for physical comorbidities and avoiding harmful substances

- Chronic pain often interacts with physical/mental comorbidities, making pain management difficult. Common comorbidities include hypertension, heart disease, diabetes, joint diseases, obesity, and other chronic conditions.
- Through medical assessments, identifying comorbidities, understanding treatment plans, regularly seeking medical care and medication, enhancing self-care capabilities, lifestyle changes, and establishing exercise habits.
- Avoid harmful substances and stabilize substance use disorders.

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Chapter 18

Information for Family and Caregivers

1. Introduction

Family support is crucial for patients suspected of substance use disorders and concurrently suffering from non-cancer chronic pain, as it can significantly aid in treatment. Medical personnel can explain to family members and caregivers the relevant information about patients with substance use disorders concurrently experiencing non-cancer chronic pain (hereinafter referred to as chronic pain) and their care models, as well as provide support and assistance to the patients. If necessary, seeking assistance from social resources is also advisable. Matters for family and caregivers to understand and assist include the following:

1.1. Understand substance use disorders and their treatment.

1.2. Understand chronic pain and its treatment.

1.3. Assist patients in receiving treatment.

1.4. Pay attention to the safety of the patient's medication.

1.5. Help patients maintain physical and mental health and relieve stress.

1.6. Caregivers should engage in self-relaxation and enhance resilience to stress.

For the above issues, family members and caregivers should consult and discuss with medical personnel.

2. Understanding substance use disorders and their treatment

2.1. What is a substance use disorder?

(1) What are the commonly used and abused substances?

(2) What are the reasons for substance use disorders?

(3) What is the relationship between substance use disorders and mental illnesses?

2.2. Treatment of substance use disorders

(1) Principles of treating substance use disorders.

(2) What is maintenance therapy for substance use disorders?

3. Understanding chronic pain and treatment

3.1. Causes of chronic pain

(1) What are the reasons causing chronic pain in patients?

(2) What are the common co-existing diseases that need to be addressed, including substance use disorders?

3.2. Relationship between pain and substance use disorders

(1) What is the causal relationship between pain and substance use disorders?

(2) What are the assessments of substance use disorders?

(3) What are the treatments of substance use disorders?

3.3. Assessment of pain

(1) What is the severity of pain?

(2) Does pain affect the patient's daily life?

(3) What is the psychological and emotional status of the patient?

3.4. Care methods for chronic pain

(1) What are the care goals?

(2) What are the standard care models?

4. Assisting patients in receiving treatment

4.1. Care for substance use disorders

(1) How to assist patients in receiving maintenance therapy?

(2) How to prevent exacerbation or relapse of substance use and illness?

4.2. Care for chronic pain

(1) What are the common methods of pain relief?

(2) What are the reasons why chronic pain is difficult to treat?

4.3. Other treatment methods for chronic pain

(1) What are the objectives?

(2) What are the treatment methods?

5. Patient medication safety

5.1. What are the medication for treating substance use disorders?

5.2. What are the medication for treating chronic pain?

5.3. What are the side effects of medication?

5.4. What are the safe storage of medication?

5.5. When and how to seek assistance from medical institutions?

6. Assisting patients in promoting mental and physical health and releasing stress

6.1. Methods for promoting mental and physical health

(1) How to arrange rehabilitation/exercise?

(2) How to maintain good sleep quality?

(3) How to maintain a balanced diet?

(4) How to avoid exposure to substances harmful to mental and physical health?

6.2. Stress release methods

(1) Managing internal and life stress?

(2) How to cultivate good interpersonal relationships and social support?

7. Self-Relaxation and stress resilience for caregivers

7.1. What are the methods for promoting mental and physical health?

7.2. How to perform relaxation training and mindfulness stress reduction?

7.3. How to seek support?

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Chapter 19

Introduction of Lifestyle Medicine

1. Introduction

1.1. In this busy and challenging modern society, we often overlook the care of our own health. With the advancement of technology and the improvement of living standards, we may tend to rely more on medications and medical technology to treat diseases, while neglecting the impact of lifestyle on physical and mental health. Increasing evidence shows that a healthy lifestyle is crucial for preventing and managing many diseases.

1.2. Lifestyle medicine is a emerging field dedicated to preventing, treating, and managing diseases (such as cardiovascular diseases, liver or kidney diseases, diabetes, chronic pain, and cancer) through changing individual lifestyle. Its core principle lies in adjusting habits such as diet, exercise, sleep, stress management, social activities, and avoiding harmful substances to effectively improve overall health, reduce the risk of illness, and enhance the effectiveness of existing treatments.

2. Lifestyle medicine in disease prevention and treatment

Lifestyle medicine is a comprehensive concept that not only focuses on treating diseases but also emphasizes prevention and improving people's lifestyles to promote health. Many common diseases, such as cardiovascular diseases, diabetes, hypertension, pain, and cancer, are closely related to lifestyle factors (such as unhealthy habits, dietary habits, lack of exercise, and excessive stress). Therefore, lifestyle medicine emphasizes preventing and treating diseases by changing unhealthy lifestyle habits. Health is not just a state but also a choice of lifestyle. By cultivating healthy lifestyle habits, we can enhance the body's resistance, reduce the risk of illness, and enjoy a healthier and better life.

3. Basic principles of lifestyle medicine

3.1. Comprehensive treatment

Lifestyle medicine advocates for integrating lifestyle factors into the entire treatment plan, distinguishing it from conventional single-disease treatments. It emphasizes the comprehensive impact of factors such as physical, psychological, social, and environmental aspects on health. Physicians and patients work together to develop comprehensive treatment plans to improve overall patient health.

3.2. Prevention as priority

One of the key aspects of lifestyle medicine is prevention, emphasizing the prevention of diseases through healthy lifestyle practices. This includes providing personalized prevention plans and encouraging individuals to focus

on lifestyle adjustments while they are in good health to reduce the risk of illness.

3.3. Individualized therapy

Each person's lifestyle, environment, and health condition are unique. Lifestyle medicine emphasizes designing lifestyle interventions tailored to individual needs, based on their specific requirements and risk factors, including physiological, psychological, social, and spiritual aspects.

3.4. Multidisciplinary collaboration

Given the comprehensive nature of lifestyle medicine, it often requires collaboration among multiple disciplines, including physicians (from various specialties), dietitians, mental health professionals, and others. This collaborative approach helps provide holistic health promotion, disease prevention, and treatment.

4. Practice of lifestyle medicine

Lifestyle medicine interventions are varied, aiming to help patients actively change their lifestyle habits. Here are some common practices:

4.1. Dietary guidance

Offer personalized dietary advice, including balanced nutrition, reducing unhealthy components in the diet, and practicing portion control.

4.2. Exercise prescription

Develop tailored exercise plans for patients, including aerobic exercises, strength training, and joint mobility exercises, to improve cardiovascular health, weight management, etc.

4.3. Stress reduction and psychological health management

Provide stress management techniques, psychological health support, and behavioral therapy to address lifestyle-related mental health issues.

4.4. Improving sleep habits

Offer advice on improving sleep quality, including maintaining regular sleep schedules, reducing caffeine intake, etc.

4.5. Social activities and support systems

Encourage social interactions and establish support systems to enhance overall quality of life.

4.6. Smoking and alcohol cessation programs

Assist patients in quitting harmful lifestyle habits such as smoking and excessive alcohol consumption.

5. Application of lifestyle medicine

Lifestyle medicine can be applied to multiple areas, including but not limited to the following examples:

5.1. Cardiovascular disease

Adjusting lifestyle factors such as improving dietary habits, increasing physical activity, ensuring restorative sleep, stress management, and weight control can help prevent and treat cardiovascular diseases.

5.2. Diabetes

Dietary control, exercise, and weight management have significant impacts on blood sugar control in diabetic patients.

5.3. Stress management

Enhancing patients' ability to cope with life stressors and reducing psychological health-related issues can be achieved through exercise, relaxation training, restorative sleep, positive social connections, and other stress management techniques.

5.4. Pain

Improving nutrition, physical activity, stress management, sleep quality, positive social connections, and avoiding harmful substances can effectively prevent and treat pain-related issues.

5.5. Cancer

Lifestyle medicine plays a role in the prevention, treatment, and recovery from cancer, through adjustments in diet, recommendations for sleep and exercise, and stress management techniques.

6. Six pillars of lifestyle medicine

The six pillars of lifestyle medicine are crucial for maintaining overall health, preventing diseases, and enhancing quality of life. These six pillars are nutrition, physical activity, stress management, restorative sleep, positive social connections, and avoiding harmful substances. The following is an introduction to each:

6.1. Nutrition

Nutrition plays a vital role in the normal functioning of the body, disease prevention, and treatment. A balanced and diverse diet ensures the body receives an adequate amount of nutrients, including vitamins, minerals,

proteins, fats, and fiber. Lifestyle medicine emphasizes plant-based dietary patterns, such as increasing intake of fresh fruits, vegetables, whole grains, and healthy fats, while limiting processed foods, high sugar, and saturated fat intake. Since individual nutritional needs vary based on factors like age, gender, daily activity level, and health condition, Lifestyle Medicine emphasizes personalized nutrition plans to meet individual needs.

6.2. Physical activity

Physical activity has positive effects on cardiovascular health, weight control, immune function, and psychological well-being. Moderate aerobic exercises such as walking, running, swimming, etc., can strengthen heart and lung function and promote muscle strength. Lifestyle medicine considers individual needs, health conditions, and lifestyles when planning physical activity interventions. Exercise prescriptions may include determining appropriate types, intensity, frequency, and duration of exercise to ensure positive health outcomes.

6.3. Stress management

Long-term psychological and physiological stress is closely associated with various diseases, including hypertension, heart disease, immune dysfunction, pain, and cancer. Therefore, lifestyle medicine emphasizes learning effective stress management techniques, including deep breathing, meditation, relaxation exercises, and establishing healthy lifestyle rhythms. Stress management also involves balancing work and life, building support systems, and learning coping strategies. Lifestyle medicine typically assesses individual stressors and provides tailored support and advice to help individuals cope more effectively with stress.

6.4. Restorative sleep

Restorative sleep is crucial for bodily repair, strengthening the immune system, and maintaining psychological well-being. Inadequate sleep is closely related to various diseases, including heart disease, hypertension, diabetes, and depression. Lifestyle medicine emphasizes maintaining regular sleep patterns, creating a comfortable sleep environment, avoiding stimulating substances (such as caffeine), and establishing good sleep habits. Sometimes, sleep issues may require medical treatment and management, so lifestyle medicine also includes assessment and management of sleep disorders.

6.5. Positive social connections

Positive social connections emphasize building positive, supportive social networks (interpersonal relationships), which have been shown to be closely related to psychological well-being, immune function, and life satisfaction. Lifestyle medicine encourages individuals to participate in social gatherings, volunteer and community activities. Through these positive social connections, individuals can better cope with life challenges and improve overall quality of life.

6.6. Avoiding harmful substances

Avoiding harmful substances refers to reducing or eliminating exposure to substances that are harmful to the body, including tobacco, alcohol, drugs, and environmental pollutants. These harmful substances are closely associated with various diseases such as lung diseases, liver diseases, heart diseases, and cancer. Lifestyle medicine encourages individuals to quit smoking, limit alcohol consumption, avoid the use of illegal drugs and reduce exposure to harmful environments. This helps reduce the risk of disease and improves immunity.

7. Future prospects of lifestyle medicine

With the increasing emphasis on holistic health and preventive medicine, lifestyle medicine is emerging as a key trend in improving population health. It is anticipated that with the advancement of technology, personalized health plans and mobile health services will make the practice of lifestyle medicine more precise and user-friendly. Through smart devices such as smartwatches and continuous glucose monitors, individuals can track the immediate impact of their lifestyle habits on health. This self-monitoring helps to accurately adjust lifestyle habits to achieve set health goals. Nutrition plans, exercise prescriptions, and sleep management strategies tailored based on personal data can help individuals maintain a healthy lifestyle and bring long-term and tangible benefits. Therefore, lifestyle medicine will play a more central role in improving quality of life and preventing and treating diseases in the future.

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Chapter 20

Practicing a Healthy Lifestyle for Patients with Suspected Substance Use Disorder and Chronic Pain

1. Introduction

There is a significant need to practice a healthy lifestyle for patients suspected of substance use disorder (SUD) and experiencing chronic pain. This chapter explores how to provide effective guidance and recommendations for these patients in areas such as nutrition, physical activity, stress management, restorative sleep, positive social connections, and avoiding harmful substances. The aim is to assist them in overcoming challenges and regaining a healthy and happy life.

2. Practicing a healthy lifestyle

2.1. Nutrition

(1) Impact on physical and mental health:

For patients suspected of SUD and experiencing chronic pain, proper nutrition intake can help maintain immune function, alleviate pain, improve emotional stability, and enhance resilience and self-recovery capabilities.

(2) Planning and implementation:

Ensure balanced intake of protein, carbohydrates, fats, fiber, vitamins, and minerals in every meal. Avoid excessive consumption of processed foods and sugars, opting instead for fresh, natural ingredients. Increase consumption of antioxidant-rich foods such as fruits, vegetables, and whole grains to reduce inflammation and boost immunity.

(3) Assessment:

Regular blood tests, including blood sugar, cholesterol, and blood pressure measurements, can assess the patient's nutritional status. Monitoring changes in body weight and improvements in physical function also provide insights into nutritional status.

(4) Precautions:

Avoid excessive alcohol consumption and smoking, as these behaviors can worsen health issues and exacerbate pain and SUD problems. Consult a professional nutritionist for specialized dietary needs or restrictions.

(5) Conclusion:

Nutritional intake forms the foundation for maintaining both physical and mental health. A balanced diet, avoiding excessive processed foods and sugars, and increasing intake of antioxidant-rich foods (such as fruits, vegetables, and whole grains) can help alleviate pain, improve emotional stability, and enhance resilience and self-recovery capabilities.

2.2. Physical activity

(1) Impact on physical and mental health:

For patients suspected of SUD and experiencing chronic pain, moderate exercise can alleviate pain, improve physical function, promote blood circulation, enhance sleep quality, release physical and psychological stress, boost confidence, and enhance stress resilience.

(2) Planning and implementation:

Choose suitable types and intensity of exercise. It's recommended to start with light activities such as walking, yoga, or swimming, gradually increasing both duration and intensity while avoiding overexertion and injury. Aim for regular exercise sessions, at least 3 to 5 times per week, each lasting over 30 minutes.

(3) Assessment:

Observe personal physical fitness indicators such as muscle strength, endurance, and joint flexibility. If pain worsens or discomfort arises during exercise, it's advisable to stop and consult a physician.

(4) Precautions:

Avoid prolonged static sitting and poor posture, as they may exacerbate pain and decrease fitness levels. Consider individual physical condition and capabilities when selecting exercise types and intensity to prevent overexertion and injury. Additionally, stay hydrated, and wear appropriate workout attire and footwear to prevent injuries.

(5) Conclusion:

Moderate exercise can help alleviate pain, improve physical function, promote blood circulation, enhance sleep quality, release physical and psychological stress, boost confidence, and enhance stress resilience. Therefore, patients suspected of SUD and experiencing chronic pain should choose suitable types and intensity of exercise, gradually increase exercise volume, while being cautious to avoid overexertion and injury. Regular exercise assessments should be conducted to ensure safety and effectiveness.

2.3. Stress management

(1) Impact on physical and mental health:

For patients suspected of SUD and experiencing chronic pain, stress can exacerbate pain, affect sleep quality, lower immunity, and even worsen substance abuse issues. Therefore, effective stress management is crucial for maintaining a healthy lifestyle.

(2) Planning and implementation:

Effective stress management involves a combination of methods targeting both the physical and

psychological aspects. Physical techniques such as exercise, deep breathing, listening to music, and engaging in leisure activities can help relax the body and mind, releasing stress. Psychological approaches such as meditation, relaxation training, and counseling can aid in emotional regulation and enhance stress coping abilities.

(3) Assessment:

Observe changes in mood and physical sensations (such as fatigue) to gauge the impact of stress. If stress feels overwhelming, emotions fluctuate greatly, or physical discomfort arises, seeking professional psychological counseling and assistance is advisable.

(4) Precautions:

Avoid prolonged exposure to high-stress environments and ensure timely stress release to maintain good emotional states, which can be helpful for managing chronic pain in patients suspected of SUD. Additionally, avoid excessive reactions such as excessive alcohol consumption or smoking, as these behaviors may exacerbate stress and health issues.

(5) Conclusion:

Stress management is crucial for patients suspected of SUD and experiencing chronic pain. Effective stress management can help alleviate pain, improve emotional stability, enhance resilience, and promote self-recovery. Patients should learn appropriate relaxation techniques such as deep breathing and meditation, and actively seek social support and psychological counseling to cope with stress, regulate emotions, and maintain physical and mental health.

2.4. Restorative sleep

(1) Impact on physical and mental health:

Sleep is fundamental to both physical and mental health, especially for patients suspected of SUD and experiencing chronic pain. Adequate sleep can help restore bodily functions, regulate emotions, enhance immunity, and alleviate pain.

(2) Planning and implementation:

Establishing good sleep habits, such as maintaining a consistent sleep schedule, creating a comfortable sleep environment, engaging in relaxing activities before bedtime, and practicing relaxation techniques, can improve sleep quality. Additionally, avoiding stimulating foods and beverages, minimizing electronic device usage before bedtime, and maintaining a regular daily routine are essential strategies for sleep management.

(3) Assessment:

Observe one's sleep patterns and physical sensations (such as feeling tired upon waking) to understand sleep quality and sufficiency. If experiencing poor sleep at night, fatigue, or difficulty concentrating during the day, adjustments to sleep habits or seeking professional sleep therapy may be necessary.

(4) Precautions:

Avoiding prolonged sleep deprivation or sleep disorders is crucial, as they can significantly impact physical and mental health, exacerbate pain, and worsen substance addiction issues. If experiencing prolonged poor sleep quality, seeking assistance from a professional physician for sleep therapy and management is advisable.

(5) Conclusion:

Adequate sleep can help restore bodily functions, regulate emotions, enhance immunity, and alleviate pain. Therefore, patients suspected of SUD and experiencing chronic pain should pay attention to establishing good sleep habits, avoiding stimulating foods and beverages, maintaining a regular daily routine, and seeking professional sleep therapy and management when necessary.

2.5. Positive social connections

(1) Impact on physical and mental health:

Establishing positive social connections has a beneficial impact on both physical and mental health. For patients suspected of SUD and experiencing chronic pain, building solid social networks with family, friends, and peers can provide emotional support, boost confidence, alleviate stress, enhance quality of life, and contribute to recovery.

(2) Planning and implementation:

It is recommended to actively engage in interpersonal social activities, join support groups, and maintain good communication and interaction with relatives and friends. Additionally, actively helping others, participating in volunteer services, and engaging in community activities can expand social circles and foster more positive connections.

(3) Assessment:

Observe one's interactions and relationships with the social environment. If feeling lonely, anxious, or lacking support, it is important to actively strengthen interactions with family and friends and increase interpersonal support.

(4) Precautions:

Avoid isolating oneself or becoming distant from others, as this may exacerbate emotional distress and mental pressure. Additionally, it is important to avoid establishing too many connections with individuals with negative habits, as this may impact one's own recovery and health.

(5) Conclusion:

Building solid social networks with family, friends, and peers can provide emotional support, boost confidence, alleviate stress, enhance quality of life, and contribute to recovery. Therefore, patients suspected of SUD and experiencing chronic pain should actively participate in social activities, join support groups, maintain good communication and interaction with relatives and friends, and establish more positive social connections to strengthen interpersonal support.

2.6. Avoidance of harmful substances

(1) Impact on physical and mental health:

Excessive alcohol consumption, smoking, and drug use have serious detrimental effects on physical and mental health. For patients suspected of SUD and experiencing chronic pain, it is essential to avoid these harmful substances. They may exacerbate pain, affect the efficacy of medication treatment, impair organ function, and worsen substance abuse issues and societal problems.

(2) Planning and implementation:

To avoid harmful substances, it is crucial to recognize their detrimental effects on the body and mind and distance oneself from them. Additionally, establishing

healthy lifestyle habits, adopting correct values, cultivating healthy interests and activities can help reduce dependence on and demand for harmful substances.

(3) Assessment:

Observe one's usage behavior and bodily reactions (such as euphoria or withdrawal symptoms) to understand the impact of harmful substances. If uncontrollable usage behavior, physical dependence, or withdrawal reactions are noticed, seeking professional treatment and counseling promptly is necessary.

(4) Precautions:

Avoid establishing connections with individuals who use harmful substances to prevent temptation and influence. Additionally, establishing healthy lifestyle habits and pursuing positive life goals can reduce dependence on and demand for harmful substances, enhancing self-management of illnesses and resilience.

(5) Conclusion:

For patients suspected of SUD and experiencing chronic pain, avoiding the use of harmful substances is crucial. These substances may exacerbate pain, affect the efficacy of medication treatment, impair organ function, and worsen substance abuse issues and societal problems. Therefore, patients should recognize the detrimental effects of these substances on the body and mind, distance themselves from their use and contact, and establish healthy lifestyle habits and correct values.

3. Conclusion

For patients suspected of SUD and experiencing chronic pain, practicing a healthy lifestyle is crucial and serves as a significant goal. In this chapter, we have explored six aspects of achieving this goal: nutrition, physical activity, stress management, restorative sleep, positive social connections, and avoidance of harmful substances. Firstly, maintaining a balanced diet and avoiding excessive consumption of processed foods and sugars can help alleviate pain, improve emotional stability, and enhance self-recovery capability. Secondly, moderate exercise not only releases physical and psychological stress but also enhances confidence and resilience. In terms of stress management, learning appropriate relaxation techniques, actively seeking social support, and psychological counseling can help adjust emotions, alleviate stress, and maintain overall well-being. Establishing good sleep habits and a conducive sleep environment while avoiding stimulating foods and beverages are crucial for a healthy lifestyle. Furthermore, building solid social networks with family, friends, and peers can provide emotional support and enhance quality of life. Lastly, patients are advised to refrain from smoking, excessive alcohol consumption, and staying away from drugs to establish healthy lifestyles and adopt correct values.

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