Addiction is often driven by the client's attempts to: - Answer self-medicate an underlying mental health disorder

adverse effects associated with the acute use of opioids: - Answer -Itching

-Constipation

-Respiratory depression

-Urinary retention

-Sedation

Opioid medication: Morphine - Answer -Prototype opioid agonist

-indicated for acute pain

-binds to opioid receptors in the CNS, inhibiting ascending pain pathways, altering the perception & response to pain

-also produces CNS depression and potentially respiratory depression

*may be life-threatening, especially if utilized with benzodiazepines, CNS depressants, or alcohol

onset of action:

-immediate release formulation is patient-dependent, with variable absorption.

-IV is 5-10 minutes, with a duration 3-5 hours.

-Also available in controlled release formulation (MS Contin) and extended-release morphine (Avinza).

Opioid medication: Fentanyl - Answer -has an almost immediate onset of action when given IV, with a duration of 0.5-1 hour

-More potent than morphine, but short duration of action

-the preferred opioid for those unable to tolerate morphine or hydromorphone and in those with severe hepatic and renal disease

-same indications as morphine and is also used frequently in procedural sedation and general anesthesia

-Conversion between fentanyl products is NOT mcg for mcg

Opioid medication: Hydromorphone - Answer -Similar opioid agonist as morphine but more potent

-Oral and parenteral doses are not equivalent (parenteral doses up to 5 times more potent)

Opioid medication: Meperidine - Answer -No longer recommended as an analgesic, and not widely available.

-Has numerous concerning adverse effects such as seizures and delirium.

Opioid medication: Methadone - Answer -Utilized in detoxification and maintenance treatment of opioid addiction and heroin addiction, with high variability among patients

-long acting opioid that binds to and occupies mu-opioid receptors, reducing craving for opioids and prevents withdrawal symptoms for 24 hours

-potential for abuse, only licensed opioid treatment programs or licensed inpatient hospital units permitted to order and dispense this medication

-potential for life threatening respiratory depression and QT prolongation

-Equianalgesic conversion ratios between methadone and other opioids are individually variable, with deaths occurring during conversion from chronic high dose opiate history or opioid abuse to methadone

-Discontinuation requires a wean to avoid withdrawal

-pregnant, a risk benefit ratio is necessary as fetal outcomes are improved as compared to illicit drug use, however can have decreased birth weight, length, head circumference and fetal growth

Opioid medication: Ketamine - Answer -Medication useful in general anesthesia and procedural sedation

-off label usage as infusions for acute pain, as both a stand-alone treatment, as an adjunctive option with opioids, as well as an intranasal formulation.

Opioid medication: Tramadol - Answer -Opioid agonist, with similar indications and side effect profile as other opioids, but that also blocks reuptake of serotonin and norepinephrine.

-Indicated for acute pain management, with added benefit for patients with neuropathic pain and nociceptive pain.

-Has a lower risk of constipation and dependence than other opioids, but does have risk of serotonin syndrome.

Opioid medication: Naloxone - Answer -pure antagonist, with clinical indication for treatment of acute opioid overdose.

-IV naloxone can dramatically reverse opioids, even in comatose states

-recent widespread community availability of intramuscular and intranasal administration options available given the prescription and recreational opiate crisis, and related deaths. -Given the short duration of action, patients can relapse into coma or previous overdose state, and may need continued monitoring and potentially further doses or constant infusion.

Opioid medication: Clonidine - Answer -antihypertensive agent, and Alpha2-Adrenergic Agonist

-off-label adjunctive treatment for medically supervised opioid withdrawal.

-Initial treatment is 0.1mg-0.2mg, with ability to repeat up to 4 doses until symptoms resolve, while assuring stability of blood pressure and heart rate.

-Maintenance would be determined by severity of symptoms, with treatment every 6-8 hours.

-Thought to produce analgesia at presynaptic and post junction alpha-2 adrenoceptors in the spinal cord, with pain transmission to the brain prevented.

Substance use disorder occurs when: - Answer The recurrent use of a substance, such as alcohol or drugs, causes clinically significant impairment, including health problems, disability, or failure to meet responsibilities at home, work, or school.

Dual Diagnosis and Substance Use Disorders - Answer Dual diagnoses are common in addiction medicine

-up to 60% of adolescents in community-based substance use disorder treatment programs may meet the diagnostic criteria for another mental health condition

-Clients may self-medicate to treat distressing symptoms of other conditions

-Common comorbidities include:

• anxiety disorders

• depression

• bipolar disorder

• psychotic illness

• borderline personality disorder

• antisocial personality disorder

neurobiological factors that contribute to substance use disorders: Genetics - Answer -between 40-60% of a client's vulnerability to substance use disorders may be attributed to genetic factors

-Vulnerability involves complex interactions between multiple genes, and between genes and the environment
-Example: specific genetic factors predispose an individual to alcohol dependence and tobacco use

-Genetic involvement may impact an individual's experience of a drug as pleasurable or not or how long a drug remains in the body.

-Epigenetic factors influence whether genes associated with substance use disorder are activated

neurobiological factors that contribute to substance use disorders: Neuroanatomy - Answer -Brain circuits that mediate reward, impulse control, decision-making, learning, and emotions play a role in substance use disorder

-mesolimbic dopamine pathway has been identified as the key pathway that mediates reward

-mesolimbic pathway connects the ventral tegmental area of the midbrain to the ventral striatum of the basal ganglia

- begins in the ventral tegmental area (VTA) and connects to the ventral striatum/nucleus accumbens, amygdala, hippocampus, and prefrontal cortex (PFC)

- VTA is one of the major dopamine-producing areas of the brain

- nucleus accumbens is an area found within the ventral striatum and has a strong association with motivation and reward

- Conditions that involve impulsive or compulsive behaviors, such as substance use disorder, obsessive-compulsive disorder (OCD), and obesity may relate to inefficient processing in the prefrontal cortex/striatal circuitry

neurobiological factors that contribute to substance use disorders: Neural Networks - Answer -The mesolimbic pathway is the pathway most associated with reward

-Drugs and alcohol act directly on brain receptors leading to a release of dopamine

• the neurotransmitter associated with reward

-As substance use increases, brain circuits adapt by reducing sensitivity to dopamine, leading to tolerance

• need to increase the use of a substance to achieve the same high

neurobiological factors that contribute to substance use disorders: Neural Signaling - Answer -Dopamine is the major neurotransmitter of the mesolimbic pathway

• responsible for regulating the brain's motivation, pleasure, and reward center

• released in response to natural pleasurable activities or situation

-Addictive drugs cause a surge of dopamine in the ventral striatum or nucleus accumbens

• Repeated use can lead to changes in brain circuitry, leading to craving, addiction, dependence, and withdrawal

-Medications which treat addiction target dopamine

Tolerance - Answer With repeated ingestion of a drug, the drug shows decreased effect. Increasing doses are required to achieve the effects noted with the original administration.

Dependence - Answer State of adaptation produced with repeated administration of certain drugs so that physical symptoms occur when the drug is discontinued abruptly

Addiction - Answer A change in behavior caused by biochemical changes in the brain after continued substance use characterized by preoccupation with and repeated use of a substance despite negative outcomes.

Withdrawal - Answer Physiological and psychological reactions that occur when the use of a substance is stopped abruptly.

Intoxication - Answer Condition following the ingestion of a substance resulting in changes in level of consciousness, cognition, perception, judgment, and behavior.

When assessing clients for substance use disorder, to determine the most appropriate course of treatment. the PMHNP must ascertain: - Answer what substance the client is using

how much

how often the substance is used

when the substance was last ingested

MAT - Answer medication-assisted therapy (MAT)

-clients use prescription medications as part of a treatment plan for substance use disorders