

Cannabis Related Symptoms

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THE STORY IN ONE SENTENCE

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“THC locks onto brain receivers called CB1 receptors and changes how neurons talk to each other, which shifts mood, memory, hunger, and the body's alarm system.”

Normal anatomy — the body's job

Your brain makes its own cannabis-like molecules called endocannabinoids (endo = inside). These molecules land on CB1 receptors all over your brain to fine-tune how neurons send messages—keeping mood steady, memory sharp, appetite normal, and the stress alarm ready but not stuck on.

BODY'S JOB

CB1 receptors sit on the 'sending' end of neurons (nerve cells) and act like a brake pedal: when an endocannabinoid lands on CB1, it tells that neuron to calm down and release less of its signal. This system helps your brain keep excitement and calm in balance, store memories without being overwhelmed, feel hungry when you need food, and turn off the stress response after danger passes.

1. Endocannabinoids are released from the receiving neuron when that cell is very active.
2. The endocannabinoid floats backward across the tiny gap (synapse) to the sending neuron and docks on a CB1 receptor.
3. Once the job is done, enzymes quickly break down the endocannabinoid so the system can respond fresh the next time.

4. CB1 receptors are especially dense in the prefrontal cortex (the front of the brain that plans ahead and pumps the brakes on impulses), hippocampus (the brain's memory storage room), amygdala (the brain's alarm center that flags danger and strong feelings), basal ganglia (deep brain structures that control smooth movement and habit loops), and hypothalamus (the brain's thermostat and hunger switch).

What breaks

THC from cannabis looks enough like your natural endocannabinoids that it can land on the same CB1 receptors—but THC stays there much longer (hours instead of seconds) and floods far more receptors at once than your body ever would. This jams the brake pedal down across your whole brain, disrupting the careful balance that keeps mood, memory, fear, and appetite steady.

CLINICAL TERM

Exogenous delta-9-tetrahydrocannabinol (THC) acts as a partial CB1 agonist with high lipid solubility and prolonged receptor occupancy, causing sustained downregulation of presynaptic neurotransmitter release—particularly dopamine in mesolimbic pathways, GABA in the amygdala, and glutamate in the hippocampus and prefrontal cortex—leading to acute intoxication, tolerance, dependence, and, in susceptible individuals, withdrawal and hyperemesis.

How the body compensates

The body does not sit still when CB1 receptors are overstimulated day after day. Your brain tries to restore balance by reducing the number of receptors (downregulation) and making the remaining ones less sensitive—like turning down all the volume knobs because the music is too loud. This adaptation keeps the brain from being completely overwhelmed, but it is why tolerance builds, why stopping feels so hard, and why natural mood and motivation drop even when you are not high.

1. {'step': 'Receptor downregulation and desensitization', 'how': 'Within days to weeks of repeated THC exposure, neurons pull CB1 receptors off the cell surface (internalization) or disconnect them from G-proteins (the internal signaling switches inside the cell).', 'buysTime': 'This protects neurons from being stuck in a constant 'brake-on' state and prevents neurotransmitter signaling from shutting down completely.', 'cost': 'You need more cannabis to feel the same effect (tolerance), and your natural endocannabinoid system becomes weak—so anxiety, insomnia, and low mood creep in even on days you use.'}

2. {'step': 'Behavioral compensation and dependence', 'how': "The brain begins to associate cannabis with relief from withdrawal discomfort (irritability, insomnia, loss of appetite), creating a habit loop in the basal ganglia (the brain's autopilot for routines).", 'buysTime': "Using cannabis briefly suppresses withdrawal symptoms and restores a feeling of 'normal,' which reinforces continued use.", 'cost': 'This loop becomes psychological and physical dependence—stopping feels impossible because the brain now expects cannabis to function, and every attempt to quit triggers withdrawal.'}
3. {'step': 'Autonomic and thermoregulatory workarounds (in cannabinoid hyperemesis syndrome)', 'how': "Hot showers or baths activate TRPV1 receptors (heat-sensing proteins in the skin and gut) that temporarily override the nausea signal sent by dysregulated CB1 receptors in the brainstem's area postrema and the enteric nervous system (the gut's own mini-brain).", 'buysTime': 'The person gets 20–60 minutes of relief from vomiting, which reinforces compulsive bathing (sometimes 10+ times a day).', 'cost': 'The underlying CB1 dysfunction is not fixed—vomiting returns as soon as the heat effect fades, and the cycle continues until cannabis is stopped completely.'}
4. {'step': 'Cognitive and motivational masking', 'how': "Adolescents and young adults often do not notice memory or motivation problems because school or work still gets done (barely), friends still hang out, and life feels 'fine.'", 'buysTime': 'The person does not seek help, so cannabis use continues unchallenged for months or years.', 'cost': 'Subtle deficits in learning, planning, and emotional regulation accumulate; by the time the person or family notices, CB1 downregulation and habit loops are deeply entrenched, and intervention is harder.'}

Domino effect

1. THC floods CB1 receptors across the brain, jamming the brake pedal on neurotransmitter release in circuits that control mood, memory, fear, coordination, and appetite. — Unlike your natural endocannabinoids—which work for seconds in one tiny spot—THC stays bound for hours and hits millions of receptors at once, so the careful moment-to-moment tuning is lost.
2. Within minutes, dopamine signaling shifts in the ventral tegmental area and nucleus accumbens (the brain's reward highway), GABA (the brain's main calming messenger) release drops in the amygdala, and glutamate (the brain's main excite messenger) weakens in the hippocampus and prefrontal cortex. — This causes the acute high: euphoria or giggly mood (dopamine surge), anxiety or paranoia (amygdala freed from GABA brakes), red eyes and fast heart (sympathetic nervous system freed from normal brakes, causing blood vessels to widen and heart rate to jump), trouble forming new memories (hippocampus disrupted), slowed thinking and reaction time (prefrontal cortex and cerebellum jammed), and intense hunger—often called 'the munchies'—because the hypothalamus hunger signal is turned way up.

3. With repeated use over days and weeks, neurons pull CB1 receptors off the surface and disconnect the remaining ones from G-proteins (downregulation and desensitization). — The brain is trying to protect itself from constant overstimulation, but now you need more THC to feel anything (tolerance), and your natural endocannabinoid tone—which keeps mood, sleep, and appetite steady—is weakened even when you are not high.
4. If you stop using after weeks or months of heavy use, withdrawal kicks in within 1–3 days: irritability, anxiety, insomnia, loss of appetite, sweating, and restlessness. — CB1 receptors are still downregulated, so the brake pedal is too weak—your brain is stuck without its artificial crutch (THC) or its natural balance (endocannabinoids that have not fully recovered yet). Symptoms usually peak around day 3–6 and fade over 1–2 weeks as receptors slowly return to the cell surface.
5. In a subset of chronic, heavy users—especially daily users over months to years—cannabinoid hyperemesis syndrome (CHS) develops: severe, cyclic nausea and vomiting that only improves with hot showers and stopping cannabis. — Prolonged CB1 dysregulation in the brainstem's area postrema (the vomiting control center) and the enteric nervous system (the gut's own network of neurons) flips the anti-nausea effect of cannabinoids into a pro-nausea state (the exact mechanism is still being studied, but receptor desensitization and paradoxical signaling are central). Hot water activates TRPV1 heat receptors that temporarily override the nausea, so patients compulsively bathe—but the only real fix is stopping cannabis completely and waiting days to weeks for CB1 tone to reset.
6. Over months to years, especially in adolescents, chronic CB1 interference in the hippocampus and prefrontal cortex impairs memory consolidation, attention, planning, and motivation. — The brain circuits that build new memories and control impulses are still maturing until the mid-20s, so repeated THC exposure during this window can cause lasting changes in CB1 density and white-matter connectivity (the brain's information highways)—resulting in poorer school or work performance, trouble with complex tasks, and low drive (amotivational syndrome).
7. In individuals with genetic vulnerability or high doses of THC, acute psychosis can emerge: hallucinations (seeing or hearing things that are not there), paranoia, and disorganized thinking. — THC-induced dopamine surges in the mesolimbic pathway and weakened prefrontal control mimic the circuit changes seen in schizophrenia; adolescents and people with a family history of psychotic disorders are at highest risk, and heavy use before age 18 approximately doubles the lifetime risk of developing a psychotic disorder.

8. Once dependence and habit loops are entrenched in the basal ganglia, the person feels trapped: using cannabis no longer brings much pleasure (tolerance), but stopping brings intense discomfort (withdrawal) and the loss of a coping tool the brain now believes it needs to sleep, eat, or calm down. — The reward circuitry has been hijacked—cannabis becomes the default solution for stress, boredom, or insomnia—and breaking the cycle requires both time (for CB1 receptors to recover) and new behavioral tools (sleep hygiene, stress management, social support) to replace the old habit. With abstinence, CB1 receptor density and sensitivity begin to recover within days to weeks, withdrawal fades, cognitive function improves, and most people regain normal mood, memory, and motivation—but the process requires patience and often benefits from counseling or medical support.

Symptoms · what the patient feels, and why

- Severe nausea and vomiting that comes in waves or cycles: THC (the main active chemical in cannabis) builds up in fat tissue over time with heavy, regular use. When blood levels of THC rise or swing, it triggers the area postrema (the brain's vomit center at the base of the brain) and disrupts normal signals in the gut, causing intense nausea and vomiting that comes in episodes—often lasting hours to days—then calms down, then comes back again.
- Relief from very hot showers or baths (compulsive bathing): Hot water activates TRPV1 receptors (heat-sensing nerve endings in the skin) that send competing signals up to the brain and spinal cord, temporarily overriding the nausea signals. This short-term relief is so specific to cannabis hyperemesis that many people spend hours in scalding showers—and doctors use this behavior as a key diagnostic clue.
- Belly pain in the upper stomach area (epigastric pain): Cannabis slows the normal squeezing motion of the stomach (called delayed gastric emptying) by acting on cannabinoid receptors in the nerves that control digestion. Food sits too long in the stomach, causing cramping, pressure, and discomfort in the upper belly.
- Anxiety, restlessness, or feeling on edge: Cannabis affects cannabinoid receptors in the amygdala (the brain's alarm center) and the hippocampus (memory and emotion center). With chronic use, the brain adapts by turning down its own natural calming signals; stopping or erratic dosing then causes rebound anxiety as the brain struggles to regain balance, and stress hormones like cortisol become dysregulated.
- Memory problems or trouble focusing (short-term memory loss): THC binds to CB1 receptors in the hippocampus (the brain's memory-forming center) and the prefrontal cortex (the front part of the brain that plans and focuses). This slows the electrical signals neurons use to form and retrieve memories, making it hard to remember what just happened or stay on task.

- Increased appetite or intense hunger ('the munchies'): THC activates CB1 receptors in the hypothalamus (the brain's hunger control center) and releases extra ghrelin (the body's main hunger hormone). This makes you feel very hungry even when your body has enough food, and it heightens the reward feeling from eating, especially sweet or fatty foods.
- Rapid or pounding heartbeat (tachycardia): THC causes blood vessels to relax and widen, which drops blood pressure slightly; the heart then speeds up to pump more blood and keep pressure stable. Cannabis also activates the sympathetic nervous system (the body's fight-or-flight wiring), which directly increases heart rate. In vulnerable people—especially those with existing heart disease—this can strain the heart.
- Paranoia, extreme suspicion, or feeling like people are watching or plotting against you: THC can overstimulate the amygdala (the brain's fear and threat detector) while reducing activity in the prefrontal cortex (the part that normally calms down fear and checks reality). This imbalance makes harmless situations feel dangerous. The risk is highest in people with a genetic vulnerability to psychosis, especially adolescents whose brains are still developing.
- Hearing voices, seeing things that are not there, or having beliefs that are not real (hallucinations or delusions): High doses of THC disrupt how the brain filters and interprets sensory information, especially by affecting dopamine (a brain messenger involved in reward and perception) in the striatum and prefrontal cortex. In vulnerable individuals—particularly teens or those with a family history of schizophrenia—cannabis can unmask or trigger lasting psychotic symptoms that may not go away even after stopping use.

Focused exam

- Red eyes (conjunctival injection) with dilated pupils: THC (the active chemical in cannabis) relaxes tiny blood vessels in the whites of the eyes, making them look red. At the same time, THC changes how the brain controls pupil size—pupils get bigger and stay big. Red eyes with big pupils tell you cannabis is working in the body right now.
- Heart rate over 100 beats per minute with normal or slightly low blood pressure: Cannabis tells the heart to speed up by turning on stress signals (norepinephrine and epinephrine—chemicals that your body releases in danger). Meanwhile blood vessels relax, so blood pressure stays normal or drops a little. This pattern—fast heart, okay blood pressure—points to cannabis, not a heart attack or other emergency.
- Dry mouth (xerostomia) and slowed, slurred speech: THC blocks signals that tell saliva glands to make spit, so the mouth feels like cotton. It also slows down circuits in the cerebral cortex (the outer layer of the brain that controls speaking) and the cerebellum (the back-bottom part that times movements). These signs show cannabis is affecting the nervous system right now.

- Tremor (shaking) in the hands during purposeful movement, worse when trying to focus: THC disrupts the cerebellum (the brain part at the back that smooths out movement and keeps your hands steady). This causes shaking when the person tries to do something precise, like reaching or writing. It is not Parkinson disease—it is the brain struggling to coordinate while cannabis is in the system.
- Smell of burnt plant material or sweet vapor on clothes, breath, or hair: The smell is direct proof of recent use. Cannabis smoke and vape both leave a strong, recognizable odor. If you smell it, the person used cannabis within the past few hours, and the symptoms you see now are tied to that use.
- Impaired short-term memory—cannot recall three simple words after 3 to 5 minutes: THC blocks CB1 receptors in the hippocampus (the brain part deep inside each temple that turns experiences into memories you can keep). The person can hear you and understand you, but new information does not stick. This memory problem happens only while THC is active and is a hallmark of acute cannabis intoxication.

Diagnostics · every test answers a question

- Urine drug screen (immunoassay) for THC metabolites → Has this person used cannabis recently?
- 12-lead electrocardiogram (ECG) and continuous heart monitor → Is the fast heart rate dangerous, or is it just the body reacting to cannabis?
- Blood pressure sitting and standing (orthostatic vital signs) → Is blood pressure staying safe, or is the person at risk for fainting?
- Fingerstick blood glucose → Is low blood sugar causing confusion or anxiety instead of—or along with—cannabis?
- Pulse oximetry (oxygen saturation) → Is the person getting enough oxygen, or is something else going on in the lungs or heart?
- Mental status exam with attention and short-term memory testing (e.g., recall of three objects after 5 minutes) → How badly is cannabis affecting thinking and awareness right now?

Treatment logic

- Stop all cannabis use immediately and remove access to cannabis products → Removes the chemical (THC) that is overloading CB1 receptors in the brain. Within hours to days, the brain's stress circuits (amygdala and locus coeruleus), memory pathways (hippocampus), and movement control (cerebellum and basal ganglia) start working normally again. Prevents new episodes of panic, psychosis, or severe intoxication.

- Reassurance, calm environment, and time (supportive care for acute intoxication) → Reduces fear and panic by letting the person know they are safe and that symptoms will pass as THC clears from the body (usually 4 to 6 hours for acute effects of smoked or vaped cannabis, up to 12 hours for edibles). A quiet room, dim lights, and gentle talk calm the overactive stress circuits (amygdala and sympathetic nervous system—the fight-or-flight system).
- Short-acting benzodiazepine (e.g., lorazepam 0.5 to 1 mg by mouth or sublingual) for severe panic or agitation that does not improve with reassurance → Activates GABA-A receptors, which are the brain's main 'calm-down' switches. GABA (gamma-aminobutyric acid, the brain's main quieting chemical) opens channels that let chloride ions flood into neurons, stopping them from firing panic signals. This directly breaks the panic loop and slows the racing heart. Works within 20 to 30 minutes and lasts 4 to 6 hours.
- Antipsychotic medication (e.g., risperidone 1 to 2 mg or olanzapine 5 to 10 mg by mouth once daily) if psychosis (hallucinations, delusions, paranoia) lasts more than 48 hours or is severe → Blocks dopamine D2 receptors in the mesolimbic pathway (the brain circuit running from the ventral tegmental area deep in the midbrain to the nucleus accumbens in the front) that generates false beliefs and strange perceptions when overactive. Stops the psychosis from becoming permanent or triggering a full schizophrenia-spectrum illness in someone with genetic vulnerability.
- Motivational interviewing or cognitive-behavioral therapy (CBT) focused on cannabis use disorder → Helps the person understand why they use cannabis (boredom, stress, peer pressure, sleep problems, escape from painful feelings) and builds skills to handle those triggers without the drug. Retrains the brain's reward system (ventral striatum and prefrontal cortex) to find satisfaction in other activities—exercise, hobbies, social connection. Reduces relapse rates by 30 to 40 percent compared to no therapy, per meta-analyses and American Psychological Association guidelines.
- Screen for family history of psychosis (schizophrenia, schizoaffective disorder, bipolar disorder with psychotic features) and counsel strict, lifelong avoidance if positive → Identifies people with genetic risk who are 3 to 5 times more likely to develop permanent psychotic illness if they use cannabis, especially high-potency products (THC >10 percent), per longitudinal cohort studies and ACNP expert consensus. Turns the conversation from 'use less' or 'wait until you are older' to 'never use—your brain cannot safely handle THC.'
- Address sleep, housing stability, food security, and daily structure (school, work, meaningful social connection) → Fixes the basic needs and chronic stressors that drive people—especially adolescents and young adults—to use cannabis as a coping tool. Stable sleep and a sense of purpose help the brain's natural stress-regulation systems (prefrontal cortex, which plans and makes decisions, and the HPA axis—hypothalamus, pituitary, adrenal glands—which controls the body's long-term stress response) work properly again.

Medications

Benzodiazepines (lorazepam, diazepam) · Benzodiazepine

These medicines calm the brain fast by boosting GABA (the brain's main brake signal). GABA tells nerve cells to slow down and stop firing so quickly. When you add more GABA power, the brain's alarm bells quiet, which stops panic and lowers fear in minutes.

1. The medicine locks onto GABA-A receptors on nerve cells.
2. It makes the chloride channel (a doorway for tiny charged particles) open wider and stay open longer.
3. More chloride flows in, which makes the inside of the cell more negative.
4. A more negative cell is harder to fire, so the nerve calms down.
5. When many nerves calm at once, the whole panic circuit slows and fear fades.

SAFETY WATCH

Can slow your breathing dangerously, especially if mixed with alcohol or opioids—this can kill you. · Causes drowsiness and fuzzy thinking; never drive or use machines. · Use only for a few days—long-term use makes your body need more for the same effect (tolerance) and depend on it to feel normal. · Stopping suddenly after weeks of use can cause seizures or severe panic—must taper slowly with a doctor. · Raises fall risk in older adults. · Avoid in pregnancy when possible—may cause breathing trouble or withdrawal in the newborn.

Haloperidol · First-generation (typical) antipsychotic

This medicine blocks dopamine (a brain messenger) from landing on its docking sites. In psychosis, certain brain circuits flood with too much dopamine, causing the person to see, hear, or believe things that are not real. By plugging those docking sites, haloperidol turns down the false signals and helps reality come back.

1. Haloperidol enters the brain and locks onto D2 dopamine receptors like a plug in a socket.
2. It does NOT turn the receptor on—it just sits there and blocks dopamine from landing.
3. With fewer open receptors, dopamine signals drop.
4. The mesolimbic pathway calms down, which reduces hallucinations (seeing or hearing things that are not there) and delusions (believing things that are not true).
5. The medicine also blocks dopamine in movement areas, which is why side effects like stiffness can happen.

SAFETY WATCH

Can cause movement side effects: stiffness, tremor, restlessness, or slow shuffling walk—usually goes away when the dose is lowered or stopped. · Rare but serious: neuroleptic malignant syndrome (very high fever, rigid muscles, confusion, racing heart)—a life-threatening emergency; stop the drug and call 911. · Can stretch out the heart's QT interval on the rhythm strip, raising risk of dangerous heartbeat—check an ECG first if possible, and avoid in people with known heart rhythm problems. · May make seizures slightly more likely in people at risk. · Causes sleepiness and slow thinking; do not drive. · Long-term use (months to years) can rarely cause tardive dyskinesia (can't control face or tongue movements)—risk goes up the longer you take it.

Ondansetron · 5-HT₃ receptor antagonist (serotonin blocker)

This medicine blocks serotonin receptors in the gut and the brain's vomit zone. When you feel very sick, serotonin floods these spots and yells at your brain to throw up. Ondansetron sits on those receptors so serotonin cannot land, which stops the vomit signal and calms nausea.

1. Ondansetron binds tightly to 5-HT₃ receptors in the gut and the vomit zone.
2. It blocks serotonin from turning on these receptors.
3. With serotonin blocked, the vagus nerve stops sending 'vomit now' signals to the brain.
4. The vomit command center also quiets, so it no longer tells the stomach to empty.
5. Nausea fades and vomiting stops or happens much less.

SAFETY WATCH

Very safe overall with few side effects. · Can cause constipation—drink plenty of water and eat fiber. · Rarely can stretch the QT interval on the heart strip, especially with high IV doses—use carefully in people with heart rhythm problems. · Headache and dizziness are common but usually mild. · Safe in pregnancy—often used for severe morning sickness.

Topical capsaicin cream (0.025-0.1%) · TRPV1 receptor agonist (topical counterirritant)

Capsaicin is the chemical that makes chili peppers hot. When you rub it on the belly, it first turns on pain receptors called TRPV1, which makes a burning feeling. But if you keep using it, those receptors get tired out and stop sending pain signals for a while. This can calm deep belly pain from cannabis hyperemesis, and it may also ease nausea by changing how the gut talks to the brain.

1. Capsaicin in the cream soaks through the skin and binds to TRPV1 receptors on nerve endings.

2. The receptors fire fast at first, dumping a pain chemical called substance P, which causes the burning.
3. With repeated use, the nerve endings run out of substance P and become less responsive (desensitization).
4. As the nerves quiet, both the burning and the deeper belly pain fade.
5. This change in nerve signals may also reduce nausea by calming the pain loop between gut and brain.

SAFETY WATCH

Causes strong burning or stinging on the skin at first—this is normal and usually fades with more use. · Wash hands very well after applying; do not touch eyes, nose, mouth, or genitals—capsaicin burns mucous membranes badly. · Do not put on broken, cut, or irritated skin. · Test a small patch first to check for bad skin reaction (rare). · Keep away from children and pets. · If burning is unbearable, wipe off with rubbing alcohol or cooking oil—water makes it worse. · Some people find relief with compulsive hot showers or baths during CHS episodes; capsaicin may work through a similar heat-receptor pathway.

Intravenous fluids (0.9% sodium chloride or lactated Ringer's solution) · Isotonic crystalloid solution (electrolyte and volume replacement)

When someone vomits over and over, they lose water and salts (sodium, chloride, potassium) that every cell needs. Blood volume drops, the heart works harder, and organs like the kidneys suffer. IV fluids pour water and salts straight into the bloodstream through a vein, skipping the stomach. This quickly refills the tank, brings blood pressure up, helps kidneys flush toxins, and makes the person feel much better.

1. The IV line delivers fluid directly into a vein.
2. The fluid spreads through the bloodstream, raising total blood volume in minutes.
3. Higher blood volume raises blood pressure and improves blood flow to all organs.
4. The kidneys get more blood and start filtering and making urine again, which clears waste and some THC breakdown products.
5. Salts in the fluid (sodium, chloride, potassium, calcium, lactate) replace what was lost in vomit, so nerves and muscles work normally.

SAFETY WATCH

Very safe when given at the right speed. · Giving too much too fast can overload the heart and lungs, causing swelling and trouble breathing—especially risky in people with heart failure or kidney disease. · IV site can get sore, red, or infected—check often and change if needed. · Rare: fluid can leak into tissue around the IV (infiltration), causing swelling and pain—stop and restart in a new spot. · Check blood salts (sodium, potassium, chloride) with lab tests if fluids run longer than a day—imbalances can cause seizures or dangerous heart rhythms.

Red flags

- Severe dehydration from non-stop vomiting—dry mouth, dizziness when standing, very dark urine, confusion, or fainting—because this can lead to kidney injury or dangerous salt imbalances in the blood
- New hallucinations, delusions, or paranoia—especially in teenagers or young adults—because cannabis can trigger lasting psychosis in at-risk people, and early treatment improves outcomes
- Chest pain, pressure, or fast, irregular heartbeat, since cannabis raises heart rate and can rarely cause heart attacks, arrhythmias, or strokes, particularly in people with existing heart disease
- Thoughts of self-harm, suicide, or harming others, which can happen during severe anxiety, withdrawal, or psychotic episodes and require immediate safety evaluation
- Severe or unusual belly pain that does not fit the typical upper-stomach cramping pattern, because other emergencies—such as appendicitis, pancreatitis, or bowel obstruction—must be ruled out

Nursing priorities

1. Place the patient in a quiet, low-stimulus room with dim lighting and minimal noise, and assign one consistent caregiver — THC overstimulates cannabinoid receptors (brain cell docking stations) in the amygdala (fear center), causing sensory overload and paranoia; reducing stimulation prevents escalation of anxiety and agitation and decreases the need for sedating medications

2. Establish IV access and give normal saline bolus 500–1000 mL over 1 hour if the patient shows signs of dehydration—dry mucous membranes, a fast heart rate (tachycardia) (heart rate over 100), or orthostatic low blood pressure (hypotension) (blood pressure drop when standing) — Cannabis causes vasodilation, which lowers blood pressure, and hyperemesis causes fluid loss; dehydration reduces kidney blood flow (perfusion) (blood flow to kidneys), leading to acute kidney injury and electrolyte disturbances like low potassium (hypokalemia) (low potassium) from vomiting
3. Monitor continuous pulse oximetry, blood pressure every 15 minutes, and cardiac rhythm if the patient reports chest pain or has heart rate over 120 beats per minute — THC activates sympathetic nervous system (fight-or-flight response), increasing myocardial oxygen demand (how much oxygen the heart muscle needs); in patients with underlying coronary artery disease or cocaine co-use, this can cause heart attack (myocardial infarction) (heart attack) or arrhythmias (irregular heart rhythms)
4. Perform and document a mental status examination every 1–2 hours, checking orientation to person, place, and time, presence of hallucinations or paranoia, and level of agitation using a standardized scale — Acute cannabis intoxication typically resolves in 3–4 hours for smoked cannabis but up to 12 hours for edibles; persistent or worsening psychosis beyond this window suggests cannabis-induced psychotic disorder, requiring antipsychotic medication and psychiatric consultation rather than just observation
5. If the patient has cyclic vomiting, offer hot packs to the abdomen, assist with a hot shower if stable to ambulate, and give ondansetron 4–8 mg IV plus haloperidol 2.5–5 mg IV as first-line antiemetics (anti-nausea medicines) — In cannabinoid hyperemesis syndrome, hot water activates TRPV1 receptors (heat-sensing channels) on skin, temporarily overriding the hypothalamic dysregulation (brain temperature-control problem) that causes vomiting; haloperidol works better than ondansetron alone because it blocks dopamine in the chemoreceptor trigger zone (brain's vomit center)
6. Draw baseline labs—basic metabolic panel (blood test measuring kidney function and electrolytes), urine drug screen, and if chest pain is present, troponin and ECG—before giving any sedating medications — Low potassium (Hypokalemia) and low magnesium (hypomagnesemia) (low potassium and magnesium) from vomiting can cause QT prolongation (dangerous heart rhythm pattern) on ECG, which is worsened by antipsychotics; baseline troponin is needed because cannabis-associated chest pain can be acute coronary syndrome even in patients under 30 years old
7. Do not leave the patient unattended if they show signs of severe agitation, and use verbal de-escalation first—speak slowly in a calm tone, validate feelings, and offer choices—before giving chemical sedation — Cannabis-induced paranoia can escalate to combative behavior, risking harm to self or staff; however benzodiazepines and antipsychotics cause respiratory depression (slowed breathing) and low blood pressure (hypotension), so the lowest effective dose after de-escalation attempts is safest

8. Before discharge, provide written education on cannabis hyperemesis syndrome and psychosis risk, remove any cannabis products from the patient's belongings, and arrange outpatient substance use counseling within 1 week — Cannabinoid hyperemesis syndrome only resolves with complete abstinence (stopping all cannabis permanently); 70% of patients relapse to cannabis use within 3 months without structured follow-up, and repeated cycles of hyperemesis cause Mallory-Weiss tears (esophagus bleeding) and electrolyte emergencies

Sources

- NIDA (National Institute on Drug Abuse) 2024 Cannabis Research Report
- NEJM 2019 Cannabis Hyperemesis Syndrome review
- American Psychiatric Association DSM-5-TR Cannabis Use Disorder and Substance-Induced Psychotic Disorder criteria
- CDC Marijuana and Public Health 2023 guidelines

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