

Deck One

Flash Cards





Shine brightly.

Disclaimer

Reviewing and studying these materials and successfully completing the Clarity Education Systems' review **does not guarantee success on the American Nurses Credentialing Center's (ANCC) or the American Association of Nurse Practitioners (AANP) certification examinations.** Absolute preparation and ultimate performance on the ANCC and AANP certification exams is the sole responsibility of the student/purchaser/attendee. **This material contains information relating to various medical conditions and their treatments. Such content is for informational and educational purposes only. It is not intended to diagnose, treat, care for, or prevent any condition or disease, and it is not meant to substitute the advice from a qualified healthcare provider. You understand that this material is not intended as a substitute for medical advice or a replacement for attending an accredited educational program for a graduate and/or undergraduate education/degree. Information is gathered and shared from reputable evidence-based sources; however, we are not responsible for errors or omissions in reporting or explanation. No individual should use this information to self-diagnose or treat any health-related conditions. Your use of this program implies your acceptance of this disclaimer.**

Terms of Service Agreement

By using these materials, you agree to continue honoring the original terms of service agreement that you acknowledged when purchasing the review program. This includes, **"You must not copy, republish, adapt, make available or otherwise communicate to the public, display, perform, transfer, share, distribute or otherwise use or exploit any content on or from the Platform..."**. It is unlawful for you to make a copy or distribute any of these materials for anything other than your own personal use. This includes any and all materials supplied by Clarity Education Systems (both electronically or physically). You will NOT share any usernames/passwords or other materials unless written consent has been given by Clarity Education Systems. Any violation will result in immediate disenrollment from any purchased review without refund and can result in possible legal actions at the student/purchaser/attendee's own expense. Please review the full Terms of Service Agreement at <https://pmhnpTesting.com/terms-and-conditions>.

Finally

You've got this!!! Soon, you will be a certified psychiatric mental health nurse practitioner (PMHNP)!

Publication Data

Name: Rossi, John, 1978-, author.

Title: Flashcard Deck One.

Clarity Education Systems, 2024. | Includes bibliographical references and index.

Subjects: | MESH: Psychiatric Nursing--methods | Education, Nursing, Continuing

Clarity Education Systems (also known as www.PMHNPTesting.com) is an educational platform with the sole purpose of preparing recent graduates for the certification exam. Through online seminars and supporting materials, we help advance nursing knowledge and prepare candidates for certification. The future of mental health care is through advanced nursing.

© 2024 Clarity Education Systems

Clovis, New Mexico. 88101

All rights reserved.



Combining which two medications can prolong QTc intervals and lead to an increased cardiovascular risk?



Escitalopram and ziprasidone



What can happen if a patient takes valproic acid
and lamotrigine?



The combination can lead to Stevens-Johnson syndrome. The provider should consider dose reduction of lamotrigine



Nicotine use...



Tobacco induces CYP1A2, sudden changes in smoking habits can result in medication fluctuation. The provider will need to adjust medications based on nicotine use



Grapefruit juice...



CYP3A4 inhibitor, can inhibit many psychotropic medications such as antidepressants, antipsychotics, benzodiazepines, stimulants, and mood stabilizers



Saint John's Wort



Dietary supplement available without prescription
for the use of depression. It is a strong inducer of
CYP3A4



Common drugs metabolized by the renal system?



Gabapentin, acamprosate, and lithium



Typically, benzodiazepines are avoided in patients experiencing hepatic dysfunction because they are metabolized by the liver.

Which benzodiazepines are safe for use with a patient that has hepatic failure?



Oxazepam (Serax), temazepam (Restoril), and lorazepam (Ativan)



Taking a MAOI and tyramine together can result
in...



A hypertensive crisis

Blood pressure is 180/120 mm Hg or greater; chest pain, shortness of breath, or symptoms of stroke. Stroke symptoms include numbness or tingling, trouble speaking, or changes in vision



Intellectual Disabilities



Usually present at birth and can affect a patient's physical, intellectual, and emotional development



Which medication can cause lithium levels to increase due to reduced renal clearance?



Lisinopril, thiazides, NSAIDS, and ACE inhibitors



What is the difference between hypomania and mania?



Duration and severity of DIG FAST symptoms



Impairments with the Clock Drawing Test indicate problems in the



Right parietal lobe (right hemisphere)



Which are stronger, inhibitors or inducers?



Inhibitors are stronger than inducers. If taking both, the inhibitor will increase the inducer drug, possibly causing toxicity. So, in this case, decrease the inducing drug



Before a patient is started on a stimulant, what do you check if they have a family history of CVD?



ECG



Intellectual Developmental Disorder



Occurs during the developmental period of life, and includes both intellectual and functional deficits in reasoning, problem-solving, and academics, with communication challenges, poor social interaction, and difficulties with independent living



Global Developmental Delay



Assigned to children under the age of five; the child fails to meet developmental milestones in both intellectual and functional areas of life.
Ongoing assessment is required



Language Disorder



Difficulties in spoken, written, and other forms of language due to comprehension or function deficits; vocabulary, inability to form sentences, and impaired communication structure



Speech Sound Disorder



Challenges with clear articulation; complications for both understanding sound and being able to coordinate movement for sound (use of jaw, tongue, lips...)



Childhood-Onset Fluency Disorder



Disruptions in fluency and patterns of speech
(repetitious use, for example: I-I-I-I-I do not...)



Autism Spectrum Disorder



Impairments in social communication and restricted/repetitive interests and activities

Perform restricted or repetitive patterns of behavior, interests and activities, and can become fixated on certain topics

Stereotyped or repetitive movements



Hypersensitivity to different stimuli

Abnormal motor signs (poor coordination and/or a strange gate)



Attention-Deficit/Hyperactivity Disorder



Inattention and hyperactivity resulting in poor performance and disruptive behavior at school and home. Symptoms include distractibility, task avoidance, ignoring details or instructions, losing things easily, hyper-focus, poor organization, and failing to complete tasks. Hyperactive behaviors include constant interruptions, loud/unruly actions, delaying responsibilities, and an inability to sit



still.



Tourette's Disorder



Both multiple motor and at least one vocal tic. The tics may come and go in frequency, but must have persisted for more than a year, and have occurred before the age of 18



Persistent (Chronic) Motor or Vocal Tic Disorder



A single or multiple motor or vocal tics, but the two variations must not be present at the same time



Provisional Tic Disorder



Single or multiple motor with or without a vocal tick that has been present for less than one year and has occurred before the age of 18



Delusional Disorder



One or more delusions (a false belief), lasting one month or longer without marked impairment in bizarre or odd behavior. If the patient is experiencing hallucinations, they must not be prominent



Brief Psychotic Disorder



One or more delusions, hallucinations, disorganized and/or incoherent communication patterns, and disorganized or catatonic (disrupted awareness) behavior that has lasted at least one day, but less than a month. After the ascending symptoms of sides, the patient returns to normal functioning



Schizophreniform Disorder



Two or more delusions, hallucinations, disruptive communication patterns, disorganized or catatonic behaviors, and the presence of negative-type (emotional withdrawal, avolition) symptoms for a persistent amount of time during a one-month to six months timeframe



Schizophrenia



Unable to distinguish reality from falsehood.

Positive symptoms include delusions, hallucinations, disorganized, speech, and catatonic behavior. Negative symptoms involve diminished emotional expression. Symptoms have persisted for 6 months or greater



Schizoaffective Disorder



Symptoms associated with schizophrenia and accompanying symptoms related to a mood disorder



Bipolar Disorder



Involves both manic highs and depressive lows and extreme mood swings between the two. Mania = elevation of mood or energy, and symptoms include irritability, distractibility, impulsivity, grandiosity, flight of ideas

Increased activity levels, an overall decrease in the need to sleep, and excessive talkativeness, with



increased goal-directed activity

1 "fun" week and 2 "blue" weeks



Cyclothymic Disorder



At least a two-year history of hypomanic symptoms, which do not meet the threshold for the hypomanic episode, with periods of depressive symptoms that are also not categorized as a major depressive episode



Disruptive Mood Dysregulation Disorder



Age six and older with onset before the age of 10;
marked by persistent irritability, anger, and
extreme temper outbursts (either verbal or
behavioral) that are disproportional to the situation
that preceded the action(s)/mood



Major Depressive Disorder



Marked change in depressed mood (anhedonia) with symptoms of sleep disturbances; feelings of guilt or hopelessness; decreased interest in previously enjoyed activities; decreased energy, concentration, and appetite; retardation of speech and physical movement; and suicidal ideation

2 "blue weeks" with 5+ symptoms



Persistent Depressive Disorder



Lasts for at least two years. The patient has at least two of the depressive symptoms listed above during the two-year period with symptoms lasting more than two months at a time



Generalized Anxiety Disorder



Persistent worry; manifest in both physical and physiological symptoms with changes in vital signs and mental stability

Sweating, uneasiness, tachycardia, nausea, shortness of breath, loss of control, chest pain, muscle tension, irritability, decreased sleep, decreased energy, restlessness, and decreased



attention span

Occurs more days than not for at least six months
with the patient finding it difficult to control the
worry



Separation Anxiety Disorder



Excessive fear or anxiety when separated from an attached individual

Results in distress, worry, seclusion, sleep disturbance, nightmares about the separation, and physical manifestations



Selective Mutism



Failure to speak in social situations that normally
require communication

Not related to another underlining condition



Social Anxiety Disorder



Increased fear or worry when placed in social situations

The anxiety is disproportional to the actual threat that is posed within the social or sociocultural environment, and the avoidant behavior lasts for six months or more



Panic Attack



Brief period of marked intense mental and physical discomfort which is activated by the fear response

Sweating, shaking, dizziness, disassociation, tachycardia, nausea, shortness of breath, fear of dying or going crazy, chest pain, and/or chills



Panic Disorder



Recurrent panic attacks with persistent concern or worry about having additional panic attacks for at least a month



Agoraphobia



Fear or panic when a patient is placed in a public or crowded place for which they believe cannot be escaped



Obsessive-Compulsive Disorder



Persistent and reoccurring thoughts, urges, or ideas that are unwanted, distressing, and mind-based. Obsessive thoughts are resistant, despite efforts to ignore, or suppress the obsession

Obsessional thoughts are extremely distressing and can be seen by the patient as extremely inappropriate, disheartening, or even immoral.



Patients are able to recognize the issues

Compulsions are considered a counterbalance used to reduce the distress that is caused by obsessive and intrusive thoughts



Body Dysmorphic Disorder



Preoccupation with one's defects or physical flaws
(even though others around them do not see the
same issues)

Results in repetitive behaviors; constantly
checking on oneself in the mirror, excessively
combing hair, picking at the skin, and comparing
oneself to others regarding appearance



Hoarding Disorder



Difficulty discarding or trashing personal possessions, because of a desire to save them and has nothing to do with concern over the monetary value



Reactive Attachment Disorder



Child is unable to form healthy emotional bonds with caretakers, often because of emotional neglect or abuse at an early age and the child becomes emotionally withdrawn and rarely seeks comfort or attention (think foster care child)



Post-traumatic Stress Disorder



Trauma related to a violent or life-threatening event, that results in intense feelings and emotions such as fear, helplessness, and terror

Must have been life threatening or a physical and/or sexually violent act

Experience flashbacks of the event and can have



moments of disassociation, nightmares,
hyperarousal, hypervigilant

Will often avoid people, places, and situations that
may be associated with traumatic memory; may
have delayed onset



Acute Stress Disorder



Exposed to a traumatic event, either witnessing or experiencing the event in person or watching it occur to someone else

Followed by intrusive thoughts of the situation; nightmares or distressing dreams; flashbacks; depression; disassociation and/or dissociative amnesia; avoidance of thoughts, memories, or



feelings pertaining to the event; sleep disturbances;
and or irritability

Lasts between three days to one month after the
traumatic event with symptoms beginning
immediately after the trauma



Adjustment Disorders



Sadness, hopelessness, worry, and anxiety that develop within three months in response to a known and identifiable stressor



Dissociative Identity Disorder



Consistent patterns of derealization, depersonalization, and memory lapse culminating into a complete and separate identity state with identity fragmentation

Completely different person from one situation to the next (two or more distinct personality states)



Dissociative Amnesia



Episodic, retrograde amnesia of autobiographical content (personal information) that occurs in conjunction with or around the same time as a traumatic event



Somatic Symptom Disorder



Distress, worry, anxiety, or alterations in normal functioning as a result of significant focus on physical conditions or symptoms (such as pain)



Conversion Disorder



Physical symptoms (motor or sensory), such as numbness, blindness, deafness, seizures, or other manifestation, yet has no underlying neurologic or medical diagnosis

(Man goes blind after wife dies...)



Factitious Disorder



Imposed on Self – a false medical or psychiatric condition, where the patient deceives or misrepresents an illness or injury, in order to deceive (gain something in return)

Imposed on Another – falsifying the physical or psychological symptoms, disease, or injury of another person, in order to deceive or mislead. The



other person is considered a "victim" and in an abusive situation in which the perpetrator intentionally harms the other



Pica



Eating disorder in which a person eats things not normally considered food



Rumination Disorder



Repetitive regurgitation of food



Avoidant/Restrictive Food Intake Disorder



Failure to consume the required daily amount of nutritional food, due to a lack of interest or aversion to eating

Significant weight loss and nutritional deficiency

Self-sustain by consuming supplements



Anorexia Nervosa



Caloric restriction, low body weight (BMI), poor physical health, and developmental delays

Extreme fear of being fat or gaining excessive weight with disregard for the severity of the situation and can become obsessed with persistent behaviors designed to lose as much weight as possible



Extremely underweight, nervous or fearful about gaining weight, has distorted perceptions about weight, and participates in extreme exercising or even purging patterns to lose weight



Bulimia Nervosa



Distorted eating that results in impulsive overeating, followed by compulsive purging (vomiting)

Tied to self-esteem. Worries that being overweight will result in rejection by others

Prevention can also occur through the use of



laxatives, diuretics, and fasting



Enuresis



Repeated urination in bed or when wearing clothes

At least 5 years old



Encopresis



Involuntary or intentional act of defecating in inappropriate places. At least 4 years old



Insomnia Disorder



Difficulties falling asleep, staying asleep, or
waking up too early

Erratic sleep patterns and loss of sleep result in
significant stress and dysfunction

Results in irritability, fatigue, and inattention



Narcolepsy



Neurological disorder; excessive daytime sleepiness, suddenly falling asleep without warning or desire

Muscle paralysis while awake (cataplexy), vivid hallucinations during transitions from sleep to wakefulness or vice versa, suddenly falling asleep, and sleep paralysis



Gender Dysphoria



Mismatch between a patient's biological sex assigned at birth and their own personal gender identity

Strong desire to be another gender and like to participate in events such as cross-dressing or showing preferences for activities that are commonly gender-categorized. Desire to



outwardly manifest primary and/or secondary
gender-specific characteristics to which they
identify



Oppositional Defiant Disorder



Starting before age 8, but no later than age 12

Patterns of angry and irritable mood with argumentative, defiant behavior to include erratic temper, being easily annoyed, and argumentative with authority figures/other children/adults. Will refuse to follow rules or listen to anyone in authority



Tries to annoy others and seek to blame others for their own mistakes and behavior



Intermittent Explosive Disorder



Behavioral outbursts defined by an inability to control aggression and resulting in temper tantrums and physical fighting/aggression toward others, animals, or property

Are impulsive and not planned occurrences and result in significant problems both at home and in school and can occur in children of at least 6 years



of age



Conduct Disorder



Known bully who threatens and intimidates;
behaviors that violate the basic rights of others

Intimidation, participating in physical fighting, use
of a weapon with the intent to harm, animal
cruelty, extortion, armed robbery, destruction of
property, and deliberately disobeying rules.



Children under the age of 18



Antisocial Personality Disorder



Over the age of 18 with persistent patterns of behavior that intrude or infringe on the basic rights of others including deception, aggression, violence, theft, and cruelty

Criminals with impulsive disregard for safety; liars with extreme aggression and a propensity for irresponsible behavior with extreme



remorselessness



Pyromania



Start a fire on more than one occasion

Can become aroused and excited just before setting the fire; fascinated with intense curiosity and attraction towards situations involving fire; a sense of relief and satisfaction



Kleptomania



Need to steal based on impulse/emotion and not for financial gain; sense of tension and excitement during and immediately after the act

Great pleasure and satisfaction in stealing and is not in response to anger or psychosis



Substance Use Disorder



Use of substances or medications that impair control, result in physical dependence, complicate social and interpersonal relationships, and are often associated with risky behavior and impulsivity

Unable to decrease use or stop



Alcohol Use Disorder



Persistent pattern of alcohol use

History of unsuccessfully stopping or cutting down
and spending a great deal of time and money

Done to cope with challenges at home and work;
can result in tolerance



Delirium



Disturbance in attention with a reduction in the ability to focus and remain aware

Occurs within hours to a few days and is a marked change from baseline

Memory deficit, disorientation, changes in language, or perception



Alzheimer's Disease



Most common type of dementia

Loss of memory and cognitive decline with a decrease in neural activity in the parietal cortex, hippocampus, and basal forebrain

Must have a clear decline in memory and learning with a steady progressive decline in cognition



Frontotemporal Neurocognitive Disorder



Frontotemporal dementia, damaged neurons in the frontal and temporal lobes of the brain

Slow and steady progression with marked behavioral changes, apathetic behavior, compulsive or ritualistic type behavior, language degradation, and memory/perceptual motor functioning complications



Lewy Body Dementia



Abnormal deposits of a protein resulting in chemical alterations in the brain, which can lead to a slow and gradual progression of changes in cognition, attention, and alertness

Recurrent visual hallucinations and Parkinsonian-like movements



Vascular Neurocognitive Disorder



Progressive cognitive deficits; changes in executive functioning (confusion; attention and concentration difficulties; disorganization; inability to analyze, develop, or communicate thoughts and plans to others)

Decreased cerebral blood flow to the brain



Sudden and stepwise decline



Traumatic Brain Injury (TBI)



Caused by sports injury, car accident, penetrating object, or damage by a blunt object

Dizziness, loss of consciousness, coma, subdural or subarachnoid hemorrhaging and/or cerebral edema; decreased or lost autonomic nervous system function



Human immunodeficiency virus (HIV)



Neurocognitive; earliest stages include impairment in concentration, memory, and executive functioning with progressive psychomotor retardation, depression, irritability

Motor degradation over time



Prion Disease



Normal prion proteins become abnormally folded, causing memory impairment, personality changes, and difficulties with movement

(Bovine Spongiform Encephalopathy)



Parkinson's Disease



Deterioration of dopamine-releasing neurons in the substantia nigra

Tremors, unsteady movements, loss of balance, pill-rolling movement in their hand, bradykinesia, stiffness, and facial masking



Huntington's Disease



Hereditary and progressive; mutation in the HTT gene

Chorea, involuntary jerking, and hand-flapping movements. Progressive cognitive decline and is fatal within 10-20 years following a diagnosis



Paranoid Personality Disorder



Distrust and suspicion of others; doubt loyalty and trustworthiness and are reluctant to confide in others

Unforgiving and quick to anger and/or attack, and can be suspicious of loved ones



Schizoid Personality Disorder



Detachment from social relationships with restricted expression and emotions within personal settings

Avoid close relationships; primarily loners with little to no interest in sexual relationships and can be cold



Schizotypal Personality Disorder



Marked social and interpersonal deficits

Inability to form close relationships; cognitive or perceptual distortions to include delusions, magical thinking, superstitious beliefs, and can be paranoid



Antisocial Personality Disorder



Behavior that violates the rights of others and includes purposeful deception, aggression, and violence



Borderline Personality Disorder



Instability with mood, affect, behavior,
relationships, and identity

Dysphoric and emotionally unstable, can have
suicidal and homicidal tendencies, may experience
psychosis-like and dissociative symptoms, and are
quick to anger and be negative



Relationships are often short-lived and unstable;
sensitive to interpersonal rejection, yet attempt to
avoid abandonment



Histrionic Personality Disorder



Pattern of exaggerated emotionality and attention-seeking behaviors

Uncomfortable in situations where not the center of attention and interaction with others can result in inappropriate sexual or provocative behavior

Expressions of emotion are rapidly changing and



insincere; believe relationships to be more romantic and intimate than they are in reality



Narcissistic Personality Disorder



Need for admiration and extremely self-centered

Exaggerate talents and achievements, and become preoccupied with power, success, beauty, and an idealistic way of life; seek attention and admiration. A total sense of entitlement



Avoidant Personality Disorder



Avoid others; however, unlike schizoid, they do desire personal interaction and relationships

Chronic self-doubters and are extremely sensitive to the idea of rejection



Dependent Personality Disorder



Heavily rely upon others in multiple areas of life;
to make decisions and to give them a sense of
purpose

Pathologically agreeable and avoid conflict at all
costs to avoid losing a relationship; extremely
maladaptive and gullible



Obsessive-Compulsive Personality Disorder



Emotional and behavioral rigidity with a need to have total control and order, avoid new experiences, and be inflexible to change.

Believe that their way is the “right way.”



Cerebrum



Largest part of the brain

Responsible for all higher-order functions
(learning, memory, communication, sensation, and
movement)

Divided into a left and right hemisphere by the
longitudinal fissure



Corpus callosum



Connects the two left and right hemispheres and allows for communication (essential for normal functioning)



Left hemisphere



Dominant for most people and controls right-side functions



Right hemisphere



Controls most of the left-sided functions of the
body



Cerebral cortex



Outermost layer of the cerebrum and is made up of neuron cell bodies

Responsible for many of the human "higher functions"

Divided into four lobes - FPOT: the frontal lobe, the parietal lobe, the occipital lobe, and the



temporal lobe



Cerebellum



Located behind the cerebrum

Responsible for coordination of complex movements, balance, and posture

Dysfunctional cerebellum will cause a patient to have erratic and uncoordinated movements



Brainstem



Midbrain, pons, and medulla oblongata

Responsible for the most basic and vital human functions such as breathing, maintaining a heartbeat, sleeping, and other primitive functions



Midbrain



Relay system; plays an important role in vision and hearing as well as motor control, sleep/wake cycles, alertness, and temperature regulation



Pons



Connects the medulla oblongata and the thalamus

Responsible for relaying impulses from the motor cortex to the cerebellum, medulla, and thalamus



Medulla oblongata



Responsible for autonomic functions (heartbeat, blood pressure; reflexes – vomiting, swallowing, and sneezing)

Regulates the respiratory system via chemoreceptors that can detect changes in blood chemistry



Spinal cord



Main connection for neurons traveling between the brain and all other organs throughout the body

Any trauma caused by external forces or pathological reasons (disease) along this delivery system will affect and hinder functions at and below the location



Lobes of the brain



Frontal, Parietal, Temporal, and Occipital



Frontal lobe



"Brainiest" part of the brain

Executive functioning (decision making); think, plan, solve, decide, emotional behavior)



Damage to frontal cortex will cause



Damage to the frontal cortex can disrupt basic instincts and patients can be impulsive with inappropriate and have strange behavior



Primary motor cortex



Controls voluntary movements, such as giving a thumbs up, or shooting a basketball



Broca's area



Found within the frontal lobe; responsible for language production. Damage to this area can result in expressive aphasia



Temporal lobe



Located on the lower side of the cerebrum, just above the ears

This is the auditory cortex. Auditory sensory information from the ears is processed within the auditory cortex



Wernicke's area



Located in the temporal lobe

Responsible for receptive speech or language comprehension. Damage to this area can result in receptive aphasia



Memory formation and emotion also occur in
the...



Temporal lobe

Complications within the temporal lobe can result in hallucinations, aphasia, and amnesia



Occipital lobe



Primary visual cortex - back of the brain

Sensory information coming from the eyes will travel to the occipital cortex and will be processed into what is seen

Problems in the occipital lobe can lead to visual field deficits, blindness, and visual hallucinations



Parietal lobe



Located just behind the frontal lobe and separated by the central sulcus

Processes sensory information within the somatosensory cortex - taste, reading, and writing

Complications within the parietal lobe could cause sensory-perceptual disturbances in perceptions



resulting in increased, decreased, or distorted
hearing; vision; touch sensation; smell or
kinesthetic responses to stimuli



The Limbic System consists of...



Amygdala, hippocampus, hypothalamus, and thalamus



The Limbic System is essential for...



Essential for the regulation of emotion, memory,
motivation, and behavior



Hypothalamus



Appetite, hunger, thirst, water balance, circadian rhythms, body temperature regulation, libido, and hormone regulation



Thalamus



Smell and flow of sensory information; regulates emotions, memory, and related affective behaviors



Hippocampus



Converts short-term memory into long-term memory. Regulates motivation, stress, emotion, and learning



Amygdala



Mediates mood, emotional memories, fear, anxiety, anger, stress, emotion, and aggression



Increased levels of corticotropin releasing hormones in the amygdala, hippocampus and locus coeruleus can cause?



Increased anxiety



Broca's aphasia (expressive aphasia)



Can occur due to a stroke, brain tumor, or brain trauma

A patient may have difficulty producing speech. They can understand and know what they want to say, but are not able to form words used in verbal communication



Wernicke's aphasia



Can happen as a result of hemorrhagic or ischemic stroke

A patient may speak clearly and produce speech, but their speech has no meaning and may have difficulty understanding language



Cranial Nerve I (CN 1)



Olfactory: Sense of smell and patency of the nasal passages



CN II (CN 2)



Optic: Vision



CN III (CN 3)



Oculomotor: Motor – adjust and coordinate eye position during movement. Move and blink eyes; pupils: reactions to light and accommodation; corneal reflex



CN IV (CN 4)



Trochlear: Motor – innervates superior oblique muscle to lift the eyes to look down. The nerve also enables the eyes movement toward the nose or away from it



CN V (CN 5)



Trigeminal: Sensations in face and cheeks, taste and jaw movements; biting, chewing and swallowing, and facial and scalp sensations



CN VI (CN 6)



Abducens: Motor – innervates the ipsilateral lateral rectus muscle with partially innervation of the contralateral medial rectus muscle to produce lateral eyeball movement



CN VII (CN 7)



Facial: Facial expressions and sense of taste



CN VIII (CN 8)



Vestibulocochlear: Sense of hearing and balance



CN IX (CN 9)



Glossopharyngeal: Ability to taste and swallow



CN X (CN 10)



Vagus: Elevation of uvula and gag reflex



CN XI (CN 11)



Accessory: Shoulder and neck muscle movement



CN XII (12)



Hypoglossal: Ability to move the tongue



Norepinephrine



Produced in the locus coeruleus and medullary
reticular formation



Serotonin



Produced in the raphe nuclei of the brainstem



Dopamine



Produced in the substantia nigra, nucleus accumbens, and ventral tegmental area (VTA)



Acetylcholine



Synthesized by the nucleus basalis of Meynert



γ -Aminobutyric acid (GABA)



The most abundant inhibitory neurotransmitter

This is the calming neurotransmitter

A decrease in GABA will increase anxiety



Which drug class binds with GABA to "calm" a patient?



Benzodiazepines



Glutamate



The most abundant excitatory neurotransmitter.
Too much glutamate will cause anxiety



Pharmacokinetics



How the body interacts with administered medications – what the **BODY** does to the drug



Pharmacodynamics



How a drug (via molecular, biochemical, and physiologic effects or actions) affects the body – what the DRUG does to the body



Agonist effect



When a drug binds to a receptor and **ACTIVATES**
or opens the ion channel



Inverse agonist effect



When a drug causes the **OPPOSITE EFFECT** of an agonist: binding and closing an ion channel



Partial agonist effect



When a drug **DOES NOT FULLY ACTIVATE** the ion channel (less effective than an agonist)



Antagonist effect



When a drug binds to a receptor and it **DOES NOT**
ACTIVATE a biological response



It takes how many half-lives to eliminate a medication form the body?



5



A drug-drug interaction can cause...



Delayed, decreased, or enhanced absorption of
either drug

Decrease or increase the action of either or both
drugs

Adverse effects



If a patient is taking sertraline (Zoloft) and begins taking the mood stabilizer carbamazepine (Tegretol), what will occur?



Carbamazepine (Tegretol) is a known inducer. The inducer speeds up the metabolism of the other drug. So, sertraline metabolism **INCREASES**, resulting in an overall **DECREASE** in drug effectiveness



If a patient is taking sertraline (Zoloft) and begins taking ritonavir (Norvir; a HIV retroviral), what will occur?



Ritonavir (Norvir; a HIV retroviral) is a strong inhibitor, resulting in **DECREASED** metabolism of Zoloft and an overall **INCREASE** in the amount of sertraline (Zoloft) in the system



How does liver disease impact enzyme activity and first-pass metabolism?



Reduces drug clearance

Reduces the synthesis of plasma proteins and causes changes in liver blood flow and medication distribution

Results in TOXIC (high) drug levels (this can vary based on the chemical characteristics of the



medication and severity of liver disease)



How does reduced kidney clearance effect medications?



Reduction in kidney clearance can **INCREASE** drug serum concentrations resulting in symptoms such as confusion, tremors, slurred speech, and vomiting



Which mood stabilizer is cleared by the renal system?



Lithium



Which medications can **INCREASE** drug serum concentrations resulting in symptoms such as confusion, tremors, slurred speech, and vomiting?



NSAIDS (ibuprofen [Advil or Motrin] and
naproxen [Naprosyn or Aleve])

Thiazides (bumetanide [Bumex], ethacrynic acid
[Edecrin], furosemide [Lasix])

ACE Inhibitors (lisinopril [Prinivil or Zestril])



What occurs during old age that affects medication?



DECREASED intracellular water

DECREASED protein binding capabilities (not necessarily caused by old age, but by the disease processes seen with aging)

DECREASED (low) muscle mass



DECREASED metabolism



Inducers



DECREASE serum drug levels = Subtherapeutic



Inhibitors



INCREASE serum drug levels = Supratherapeutic



Cytochrome P-450 (CYP) enzymes



Responsible for the metabolism of many psychotropic medications and can be inhibited or induced by certain drugs, resulting in significant drug-to-drug interactions and adverse reactions



First-pass metabolism



Process by which the drug is metabolized by P-450 enzymes in the intestines and liver prior to going to systemic circulation



1A2



Inducers: Phenobarbital, Carbamazepine,
Phenytoin, Tobacco

Inhibitors: Fluvoxamine, Fluoxetine, Paroxetine,
Sertraline



2C9



Inducers: Carbamazepine, Rifampin

Inhibitors: Valproic acid, Fluoxetine



2C19



Inducers: Carbamazepine, Valproic acid,
Phenobarbital, Phenytoin

Inhibitors: Fluvoxamine, Fluoxetine



2D6



Inducers: None

Inhibitors: Bupropion, Fluoxetine, Paroxetine,
Duloxetine



3A4



Inducers: Carbamazepine, Phenytoin,
Phenobarbital, Saint John's Wort, Rifampin

Inhibitors: Fluvoxamine, Nefazodone,
Clarithromycin, Erythromycin, Fluconazole



Clozapine (Clozaril) is an atypical antipsychotic
that is metabolized by the...



P-450 enzyme 1A2



Inducers: Bull Shark CRAP GPS+



Barbiturates
St John's Wart

Carbamazepine
Rifampin
Alcohol
Phenytoin



Griseofulvin
Phenobarbital
Sulfonylureas
+ smoking and the pill



If a patient who smokes and is taking phenobarbital stops smoking what should the clinician do?



The clinician needs to remember to adjust or decrease the dose of medication since it is no longer being induced (if not, there will be too much medication in the system)



Inhibitors: can cause "Big Freaking Problems"



Bupropion
Fluoxetine
Paroxetine



Blockage of Muscarinic acetylcholine receptors by antipsychotics can cause:



Constipation, urinary retention, blurry vision, dry mouth, tachycardia, and cognitive impairment



Blockage of A-1 norepinephrine receptors by antipsychotics can cause:



Orthostatic hypotension and reflex tachycardia



Blockage of Serotonin receptors by antipsychotics
can cause:



Sedation and weight gain; however, modulation of these receptors may be the reason for improvement in treating depression and other bipolar disorders



Blockage of Histamine receptors by antipsychotics
can cause:



Sedation, weight gain, insulin resistance, diabetes, and hyperlipidemia



Blockage in the mesolimbic area pathway results
in:



A decrease in hallucinations, delusions, and other positive symptoms typically seen in schizophrenia or other psychotic conditions



Blockage in the mesocortical pathway results in:



Negative symptoms or diminished energy, lack of motivation, restrictions and emotions, and alterations in social engagements



Blockage in the nigrostriatal pathway may lead to:



Extrapyramidal symptoms (EPS), such as tardive dyskinesia, parkinsonian-like symptoms (i.e., tremors, muscle rigidity, and difficulty starting and stopping movement)



Blockage in the tuberoinfundibular pathway results
in:



Decreased follicle-stimulating hormone (FSH) and an increase in prolactin, resulting in amenorrhea, gynecomastia, galactorrhea, and/or sexual dysfunction



Akathisia = the “Ants in ‘yo pants” effect can
cause:



Restlessness
Pacing motions
Difficulty standing still
Feet constantly in motion
Rocking



Akathisia is commonly measured using the...



Barnes Akathisia Rating Scale (BARS) or the Extrapyramidal Symptom Rating Scale (ESRS)



Akathisia is often mistaken for:



Increased anxiety



Available treatment options for akathisia:



Beta-blockers (caution must be taken; beta-blockers can result in bronchospasms, do not give to a patient if they are already on a bronchodilator)

Benzotropine (Cogentin; anticholinergic)

Benzodiazepines



Akinesia =



The absence of movement; cannot initiate motion
or has a lack of motivation to move



Pharmacological management of akinesia is:



Benzotropine (Cogentin; anticholinergic)



Pseudo-parkinsonism =



Stooped posturing
Shuffling gait
Rigidity
Bradykinesia
Tremors while at rest
Pill-rolling hand motions



What causes Pseudo-parkinsonism?



The blockage of dopamine-2 (D2) receptors either pathologically or due to antipsychotic medication use



Pharmacological treatment for pseudo-parkinsonism?



Benzotropine (Cogentin; anticholinergic)



Acute Dystonia =



Facial grimacing

Involuntary upward eye movement

Muscle spasms of the tongue, face, and/or neck

Laryngeal spasms

Symptoms may or may not be reversible



Acute Dystonia can be mistaken for:



Agitation or unusual stereotypical movements associated with schizophrenia



Oculogyric Crises =



A rare presentation of acute dystonia, which can lead to permanent eye injury due to involuntary upward deviation of the eyes – bilaterally



Oculogyric Crises can be treated with:



Benzotropine (Cogentin; anticholinergic)



Tardive Dyskinesia =



Iatrogenic movements caused by the blockade of dopamine receptors



Tardive Dyskinesia can cause...



Rolling and protruding of the tongue

Sucking and/or smacking of the lips

Chewing motions

Facial dyskinesia

Involuntary movement of the extremities



How long can it take for tardive dyskinesia to occur?



It can take up to one to two years for tardive dyskinesia to present itself

It can always occur acutely at the start of medication treatment or present chronically at any point after treatment



Treatment options for tardive dyskinesia:



Reduce the medication dose

Stop the offending medication

Or switch to clozapine (Clozaril; atypical antipsychotic)



Besides Clozaril, what other medications can treat tardive dyskinesia?



Deutetrabenazine (Austedo; selective vesicular monoamine transporter 2 [VMAT2] inhibitor)

Valbenazine (Ingrezza; VMAT2 inhibitor) are also FDA approved to treat tardive dyskinesia



Which medication should be avoided in a patient with tardive dyskinesia?



Benzotropine (Cogentin; anticholinergic) should be
AVOIDED because it is known to worsen tardive
dyskinesia



Which medication is known for causing tardive dyskinesia (involuntary puckering/pursing of lips and sticking out of the tongue)



Metoclopramide (Reglan; antiemetic agent)



The first-generation antipsychotics, or typicals,
block almost all of which receptors?



Dopamine (1 through 5) receptors



Second-generation antipsychotics, or atypicals, block...



Both D2 receptors and 5-HT2A (serotonin) receptors

The blockage of 5-HT2A may increase levels of dopamine in areas of the brain that are in need and often are deprived of dopamine when using a typical anti-psychotic and can reduce side effects



What are the three second generation antipsychotics with fewer instances of weight gain?



Ziprasidone (Geodon)
Aripiprazole (Abilify)
Lurasidone (Latuda

"ZAL" she's a skinny gal!



A patient having mild anxiety should be treated
with...



Psychotherapy only (or nothing)



Neuroleptic Malignant Syndrome (NMS) =



Adverse reactions to antipsychotic use

More common with first-generation antipsychotics

Causes extreme muscle rigidity and mutism

The provider will need to monitor laboratory



values



The provider will need to monitor which
laboratory values with NMS?



Increased CPK (caused by muscle destruction)

Myoglobinuria (caused by rhabdomyolysis)

Increased white blood cells (WBCs; leukocytosis)

Increased aspartate aminotransferase (AST) and alanine transaminase (ALT) on a liver function test



(LFT)



NMS presents with a characteristic pattern of symptoms:



"FEVER"

Fever

Encephalopathy

Vital sign instability

Elevated WBC and CPK

Rigidity



Pharmacological management of NMS =



Administer bromocriptine (dopamine [D2] agonist)

Administer dantrolene (Dantrium; skeletal muscle relaxant) for extreme muscle rigidity

“BRO, you’ve got NMS! DAN, relax, I’ll be fine”



What are the common classes of medications used to treat depression?



SSRIs
SNRIs
TCAs
MAOIs
Atypicals



Selective serotonin reuptake inhibitors (SSRIs)



Fluoxetine (Prozac)
Paroxetine (Paxil)
Sertraline (Zoloft)
Fuvoxamine (Luvox)
Citalopram (Celexa)
Escitalopram (Lexapro)

Are safer in overdose and can be given to many



cancer patients d/t fewer drug interactions



Serotonin-norepinephrine reuptake inhibitors (SNRIs)



Desvenlafaxine (Pristiq)
Duloxetine (Cymbalta)
Levomilnacipran (Fetzima)
Venlafaxine (Effexor XR)



SNRIs can also be used for:



Neuropathic pain (Cymbalta)

So, if the patient presents with depression and neuropathic pain, consider using a SNRI



Tricyclic antidepressants (TCAs)



Amitriptyline (Elavil)
Doxepin (Silenor)
Imipramine (Tofranil)
Nortriptyline (Pamelor)



TCAs can cause:



Dry mouth
Slight blurring of vision
Constipation
Urinary complications
Drowsiness
Dizziness
Weight gain
Excessive sweating (especially at night)



Monoamine oxidase inhibitors (MAOIs)



Tranlycypromine (Parnate)
Selegiline (Emsam)
Isocarboxazid (Marplan)



Hypertensive crisis may occur when taking an
MAOI in conjunction with...



Foods containing tyramine

Strong or aged cheeses

Cured meats

Smoked or processed meats

Pickled or fermented foods

Sauces

Soybeans



Dried or overripe fruits
Yeast products
Alcoholic beverages (tap or home-brewed beer;
red wine, sherry, and liqueurs)



Symptoms of hypertensive crisis:



Elevated blood pressure

Explosive headaches

Facial flushing

Heart palpitations

Pupillary dilation

Excessive sweating

Fever



Hypertensive crisis treatment plan:



Discontinue the offending agent

Administer phentolamine (Regitine; α -adrenergic agonist)



Atypical antidepressants =



Bupropion (Wellbutrin; NDRI)
Mirtazapine (Remeron; α -2 receptor antagonist)
Trazodone (Molipaxin; serotonin modulator)



Bupropion (Wellbutrin) is contraindicated with a patient history of...



Seizures

Eating disorder (bulimia or anorexia)

It can decrease the seizure threshold and cause a seizure; or for a patient with an eating disorder, there is an increased risk for seizures d/t electrolyte imbalance



What can occur when there is too much serotonin in the system? Usually caused by taking too much medication or due to a drug-to-drug interaction



Serotonin Syndrome



Which drug combinations that can cause Serotonin Syndrome?



SSRIs taken with MAOIs

Taking more than one SSRI at a time

Drug and herbal interactions. Some examples include ginseng, St. John's wort, Syrian rue, Garcinia cambogia (HCA), 5-HTP, SAME, and nutmeg



Symptoms of Serotonin Syndrome =



Hyperreflexia (overactive body reflexes)

Myoclonic jerks

Sweating

Fever

Extreme headaches

Confusion

Tachycardia (heart rate > 100 BPM in adults)

Agitation



Serotonin Syndrome treatment plan:



Discontinue the offending agent

Administer Cyproheptadine

(Periactin, antihistamine)



When switching from a SSRI to a MAOI, the patient will need to...



Wait 14 days



When switching from fluoxetine (Prozac) to a MAOI, the patient will need to...



Wait 5 to 6 weeks



When switching from a MAOI back to fluoxetine (Prozac), the patient will need to...



Wait 14 days



Serotonin Discontinuation Syndrome =



Occurs when a patient stops taking a SSRI or
SNRI abruptly



Symptoms of Serotonin Discontinuation Syndrome

=



Myoclonic jerks
Flu-like symptoms (worse with TCAs)
Fatigue
Myalgia (muscle aches and pain)
Decreased concentration
Nausea and vomiting
Ataxia (an unsteady gait)
Impaired memory



Agitation Hyperreflexia



Never use an SSRI with a...



MAOI



SSRIs can increase...



Lithium and carbamazepine serum levels



Bipolar DIG FAST =



DIG FAST

Distractibility, impulsivity, grandiosity, flight of ideas, increased activity, decreased need for sleep, and talkativeness



Bipolar MANIA medications:



Lithium carbonate (Eskalith; antimanic)
Carbamazepine (Tegretol; anticonvulsant)
Divalproex (Depakote; anticonvulsant)
Oxcarbazepine (Trileptal; anticonvulsant)



Bipolar DEPRESSION medications



Lamotrigine (Lamictal; anticonvulsant)
Furasidone (Latuda; atypical antipsychotics)
Olanzapine-fluoxetine combo (Symbyax)
Quetiapine (Seroquel; atypical)



Side effects of mood stabilizers



Stevens-Johnson Syndrome – STOP taking with these signs (Lamictal)

Fever

Sore throat

Facial and tongue swelling

Severe rash

Skin sloughing



Painful mucus membranes



Carbamazepine (Tegretol; anticonvulsant) =
BLACK BOX WARNING



Agranulocytosis (extremely low WBCs-type)

Aplastic anemia (pallor, fatigue, headache, fever,
nose, bleeds, bleeding gums, skin, rash, and
shortness of breath)



An Asian patient starting on a mood stabilizer
must first...



Be screened for the HLAB-1502 allele before starting on carbamazepine (Tegretol; anticonvulsant), because of increased risk for carbamazepine-induced Stevens-Johnson Syndrome



Always, **ALWAYS** perform what **BEFORE**
starting a female patient (12-51 yo) on a mood
stabilizer?



Perform a pregnancy test (HCG) and check pregnancy status **BEFORE** starting a female patient of child-bearing years (12-51) on a mood stabilizer due to increased risk of neural tube defects



Anxiolytics (stress, panic, social anxiety,
obsessive-compulsion...)



GAD - SSRIs, Buspar, Lyrica

Stress-related anxiety - benzos, Atarax or Visaril

Panic Disorder - benzos, antidepressants

Social Phobia - Inderal, Effexor, SSRIs



Stress-related Insomnia - Ambien, Lunesta,
Restoril

Nightmares - Minipress



First-line pharm treatment of OCD includes...



Fluoxetine (Prozac)
Sertraline (Zoloft)
Fluvoxamine (Luvox)
Citalopram (Celexa)
Escitalopram (Lexapro)
Vilazodone (Viibryd)



Medications are not treating personality disorders directly but used to target and improve the symptoms. What medications can treat the symptoms?



Impulsivity/anger - SSRIs, atypicals

Schizotypal-type - low dose olanzapine and risperidone

Emotional instability - lithium, divalproex, atypicals



What medication is used to treat anorexia?



There is no medication treatment specifically for anorexia nervosa, however, atypical antipsychotics (olanzapine; Zyprexa) can reduce delusional thinking associated with the need to lose weight



What medication is used to treat bulimia?



Bulimia nervosa can be treated with
antidepressants - Prozac



Medications that can cause mania:



Steroids (can also cause psychosis)

disulfiram (Antabuse)

isoniazid (INH; antituberculosis agent)

Antidepressants when taken by patients with BD



Medications that can cause depression:



Steroids

Isotretinoin (Accutane)

Beta-blockers

Interferon (Intron; cytokine)

Retrovirals

Antineoplastics

Benzodiazepines

Progesterone (Prometrium)



What medications can render mood stabilizers ineffective and what needs to be done about it?



Fluticasone (Flonase; corticosteroid)

Prednisone (Rayos; corticosteroid)

Provider will need to make mood stabilizer dose adjustments after talking with the PCP



Teratogenic Risks of lithium:



Ebstein anomaly (heart defect; tricuspid valve abnormality resulting in blood leakage back through the valve)



Teratogenic Risks of benzodiazepines:



Floppy infant syndrome (decrease muscle tone)
and cleft palate (malformation of the mouth with
an opening in the pallet that can result in difficulty
communicating and feeding)



Teratogenic Risks of carbamazepine:



Neural tube defects (complications of the brain, spine, and/or spinal cord that can cause paralysis, urinary and bowel complications, blindness, deafness, developmental, intellectual disabilities, and death



Teratogenic Risks of divalproex:



Neural tube defects and spina bifida (spinal cord that does not develop properly and can be seen on the skin above the spinal defect)



Lithium is considered at toxic levels when equal to
or greater than...



1.5 mEq/L



The GOLD standard for treating mania =



Lithium



There is strong evidence supporting the fact that
lithium has an...



Anti-suicidal effect



Teratogenic Risks of divalproex:



Neural tube defects and spina bifida (spinal cord that does not develop properly and can be seen on the skin above the spinal defect)



Baseline labs should be taken before starting
lithium:



Thyroid stimulating hormone (TSH)

Serum creatinine and blood urea nitrogen (BUN)

Pregnancy test

Electrocardiogram (ECG) for patients older than
50



Side effects of lithium treatment:



Hypothyroidism

Coarse hand tremors

Maculopapular rash

Diarrhea, vomiting, and cramps

Anorexia

T-wave inversion as noted on ECG

Leukocytosis (increased WBCs)



Clozapine (Clozaril) has an increased risk for
causing...



Neutropenia and agranulocytosis



Neutropenia is defined as an ANC less than...



1500/ μ L



When should the PMHNP d/c clozapine d/t neutropenia?



Discontinue clozapine (Clozaril) with an ANC less than $1000/\mu\text{L}$ due to neutropenia



When should the PMHNP d/c clozapine d/t agranulocytosis?



Discontinue clozapine (Clozaril) with a WBC of 2000-3000 per mcL due to agranulocytosis



What should the PMHNP do if a patient taking clozaril is having signs of sudden fever, chills, sore throat, weakness?



D/c medication and check lab values. These are signs of an infection



Folic acid =



Supports neural tube development during the first trimester of pregnancy



It is important to recommend that all women planning or capable of becoming pregnant take...



0.4 to 0.8 mg of folic acid daily



If a manic female patient is also promiscuous or hypersexual, the provider should...



Recommend folic acid because of the chance she could become pregnant