

Pharmacology Related to Psychiatric Nursing

Antianxiety or Anxiolytic Medications

Description

- A. Used for the treatment of anxiety and also useful in the induction of sleep
- B. Exert a general depressing effect on the CNS, many also exert skeletal muscle-relaxant and anticonvulsant effects
- C. Anxiolytics are available in oral and parenteral (IM, IV) preparations
- D. Used when the individual has difficulty in coping with environmental stresses and accomplishing daily activities
- E. Although the use of sedative-hypnotics has declined in the last decade, they are still widely used to reduce anxiety
- F. These drugs were formerly called minor tranquilizers

Types

A. Benzodiazepines

1. Alprazolam (Xanax)
2. Chlordiazepoxide (Librium)
3. Clorazepate (Tranxene)
4. Diazepam (Valium)
5. Estazolam (ProSom)
6. Flurazepam (Dalmane)
7. Halazepam (Paxipam)
8. Lorazepam (Ativan)
9. Oxazepam (Serax)
10. Prazepam (Centrax)
11. Temazepam (Restoril)
12. Triazolam (Halcion)

B. Nonbenzodiazepine or azaspirodecanedione buspirone (BuSpar)

C. Anticonvulsant benzodiazepine

Clonazepam (Klonopin)

D. Propanediols

1. Meprobamate (Equanil or Miltown)
2. Tybamate (Solacen)

E. Quinazolines

Methaqualone (Quaalude)

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Precautions

- A. Drug interactions: drugs potentiate depressant effects of alcohol or sedatives
- B. Tolerance to the sedative and hypnotic effects develops eventually with all these drugs, although it develops more slowly with the benzodiazepines than with the others
- C. All of these drugs, if taken in large enough doses or for extended time periods, can lead to physical and emotional dependence
- D. Tolerance can contribute to self-medication and dosage escalation
- E. Adverse side effects are related to diminished mental alertness; caution about driving or operating hazardous machinery until tolerance develops
- F. A drop in BP of 20 mm Hg (systolic) on standing warrants withholding the drug and notifying the physician
- G. Benzodiazepine use should not be abruptly discontinued to avoid a withdrawal syndrome
- H. Severe withdrawal symptoms can occur if agents are taken for a long time (over 8 months) and in high doses

Nursing Care of Clients Receiving Antianxiety or Anxiolytic Medications

- A. Assess the client's medication history, knowledge level and use of current medications (prescribed, over-the-counter, and illicit drugs), medication allergies, and pattern of alcohol use
- B. Explore the client's perceptions and feelings about medications; clarify misinformation, fears, etc.
- C. Review psychotropic drug references for current information
- D. Plan for client learning about medication
- E. Administer medications as prescribed
- F. Teach the client about the medication, desired effect, side effects, food or activity restrictions, and lag period between onset of treatment and symptom remission
- G. Supplement verbal teaching with appropriate written or audio-visual materials
- H. Administer controlled substances according to schedule restrictions
- I. Evaluate client's response to medications and understanding of teaching

Neuroleptics (Antipsychotic Agents)

Description

A. Used to treat psychotic symptoms; that is, symptoms of being out of touch with reality; make client more amenable to therapy

B. Act by blocking dopamine receptors in the CNS and sympathetic nervous system activity; some also exert antiemetic, anticholinergic, and antihistaminic effects

C. Available in oral and parenteral (IM, IV) preparations

D. Used to relieve psychotic symptoms noted in schizophrenia, psychoses (acute, drug-induced, organic, and severe dyscontrol), agitation in acute deliria or dementia, severe anxiety that is unabated with all other treatment, Tourette's disorder, delusional disorder, pervasive developmental disorders with severe agitation or aggression, bipolar disorder (usually administered with a mood stabilizer), and psychotic depression (usually administered with an antidepressant)

E. Antipsychotics control behavior when the client's uncontrolled actions are destructive to self, others, or the environment

F. May be prescribed in conjunction with benzodiazepines (the diazepam/valium category), which is thought to minimize the use of neuroleptics and to diminish the potential for tardive dyskinesia

G. The antipsychotic agents or neuroleptics were formerly called major tranquilizers

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Types

A. Phenothiazines

1. Aliphatics

- a. Chlorpromazine (Thorazine)
- b. Promazine (Sparine)
- c. Triflupromazine (Vesprin)

2. Piperidines

- a. Mesoridazine (Serentil)
- b. Thioridazine (Mellaril)

3. Piperazines

- a. Fluphenazine (Prolixin, Permitil)
- b. Perphenazine (Trilafon)
- c. Trifluoperazine (Stelazine)

B. Benzisoxazole

Risperidone (Risperdal)

C. Butyrophenones

1. Droperidol (Inapsine)
2. Haloperidol (Haldol)

D. Thioxanthenes

1. Chlorprothixene (Taractan)
2. Thiothixene (Navane)

E. Dibenzoxazepine

Loxapine (Loxitane)

F. Dihydroindolone

Molindone (Moban)

G. Dibenzodiazepine

Clozapine (Clozaril)

Precautions

A. Drug interactions: potentiate the action of alcohol, barbiturates, antihypertensives, and anticholinergics; concomitant use should be avoided when possible; antipsychotic medications should be temporarily discontinued when spinal or epidural anesthesia is necessary

B. Adverse effects: agranulocytosis (manifested by cold or sore throat), jaundice (caused by hepatotoxicity), signs of extrapyramidal tract irritation, drowsiness (highest incidence in initial days of therapy due to CNS depression), orthostatic hypotension (CNS depression), constipation and urinary retention (anticholinergic effects), anorexia (depressed appetite center), hypersensitivity reactions (tissue fluid accumulation, photoallergic reaction, impotence, cessation of menses or ovulation), cardiac toxicity (direct toxic effect); notify the physician and withhold the medication if necessary if any adverse effects are noted

1. Extrapyramidal side effects (EPSEs)

- a. Dystonia: occurs early in treatment, possibly after initial dosage; involves grimacing, torticollis, intermittent muscle spasms
- b. Pseudoparkinsonism: resembles true Parkinsonism (tremor, masklike facies, drooling, restlessness, festinating gait, rigidity)

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- c. Akathisia: motor agitation (restless legs, "jitters," nervous energy); most common of all EPSEs
- d. Akinesia: fatigue, weakness (hypotonia), painful muscles, anergy (lack of energy)
- e. Tardive dyskinesia: late appearing after prolonged use of antipsychotic drugs; not related to dopamine-acetylcholine imbalance; most severe effect characterized by involuntary movements of face, jaw, and tongue; lipsmacking, grinding of teeth, rolling or protrusion of tongue, tics, diaphragmatic movements that may impair breathing; condition disappears during sleep; antiparkinsonian drugs ineffective and condition is usually irreversible; all antipsychotics stopped to see if symptoms subside
- f. Neuroleptic malignant syndrome: infrequent yet extreme condition occurring in severely ill clients and is believed to be the result of dopamine blockage in the hypothalamus; associated with high-potency antipsychotic drugs, especially when given in a large loading dose; symptoms are hyperthermia, muscular rigidity, tremors, impaired ventilation, muteness, altered consciousness, and autonomic hyperactivity; high body temperature is thought to be the cardinal symptom

Antiparkinsonian drugs: block the extrapyramidal symptoms

a. Anticholinergics

- (1) Benztropine (Cogentin)
- (2) Trihexyphenidyl (Artane)
- (3) Procyclidine (Kemadrin)
- (4) Biperiden (Akineton)

b. Antihistamine

Diphenhydramine (Benadryl)

c. Others

- (1) Amantadine (Symmetrel)

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- (2) Benzodiazepines (Lorazepam, Diazepam, and Clonazepam), useful for akinesia and akathisia
- (3) Propranolol (Inderal), useful for treatment of EPSEs
- (4) Clonidine (Catapres), useful for treatment of EPSEs
- (5) Nifedipine (Procardia), useful for treatment of tardive dyskinesia
- (6) Verapamil (Calan), useful for treatment of tardive dyskinesia
- (7) Dantrolene (Dantrium), useful for treatment of neuroleptic malignant syndrome

Nursing Care of Clients Receiving Antipsychotic Agents

- A. Monitor for signs of hepatic toxicity (e.g., jaundice)
 - B. Monitor for signs of infection (e.g., sore throat)
 - C. Monitor blood pressure in standing and supine positions
 1. Assist client to get out of bed slowly (dangle feet before ambulating)
 2. Assess for hypotension and tachycardia (which is usually a reflex response to hypotension)
 3. If hypotension occurs, monitor by measuring BP before each dose is given
 4. Consult physician as to safe BP systolic/diastolic margins for each client
 - D. Offer sugar-free chewing gum or hard candy to increase salivation and relieve dry mouth
 - E. Assist with ambulation as necessary; keep siderails up when nonambulatory
 - F. Assess for extrapyramidal symptoms (antiparkinsonism agent may be prescribed to decrease symptoms)
 - G. Monitor blood work during long-term therapy
 - H. Instruct client to:
 1. Avoid administration with other CNS depressants, including concurrent use of alcohol
 2. Avoid engaging in potentially hazardous activities
 3. Avoid exposure to direct sunlight; wear protective clothing and sunglasses outdoors
 4. Recognize extrapyramidal symptoms and report their occurrence to the physician immediately
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5. Avoid changing positions rapidly
 6. Notify physician if sore throat, fever, or weakness occurs; avoid crowded, potentially infectious places
 7. Increase water intake and eat high-fiber diet to avoid constipation
 8. Expect weight gain (diet pills should not be taken); control weight with appropriate diet
 9. Avoid mixing neuroleptics with certain juices or liquids (coffee, tea, or cola beverages may decrease effectiveness of drug)
 10. Avoid antacids or take 1 to 2 hours after antipsychotic drug is taken (antacids decrease absorption of antipsychotics)
- I. Use precautions when preparing medication to avoid contact with the skin
 - J. Evaluate client's response to medication and understanding of teaching

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Antidepressants

Description

A. Used to improve the general behavior and mood of clients experiencing melancholia; characteristic symptoms are a severely depressed mood, loss of interests, inability to respond to pleasurable events, a depression that is worst in the morning and lifts slightly as the day progresses, early morning awakening (and inability to fall sleep again), marked psychomotor retardation or agitation, anorexia, weight loss, and guilt

B. The antidepressants are most effective in treating clients who demonstrate symptoms of melancholia

C. Antidepressant drugs increase the level of norepinephrine at subcortical neuroeffector sites

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D. Available in oral and parenteral (IM) preparations

E. Norepinephrine blockers provide elevated levels of the neurohormone by preventing reuptake and storage at the axon (tricyclic compounds)

F. Monoamine oxidase inhibitors (MAOIs) elevate norepinephrine levels in brain tissues by interfering with the enzyme MAO; act as psychic energizers

G. Selective serotonin reuptake inhibitors (SSRIs) are thought to alleviate depression by preventing reuptake of serotonin in the CNS

Types

A. Norepinephrine blockers or tricyclic antidepressants (TCAs)

1. Amitriptyline (Elavil)
2. Amoxapine (Asendin)
3. Clomipramine (Anafranil)
4. Desipramine (Norpramin)
5. Doxepin (Sinequan)
6. Imipramine (Tofranil)
7. Maprotiline (Ludiomil)
8. Nortriptyline (Pamelor)

9. Protriptyline (Vivactil)
10. Trimipramine (Surmontil)

B. Monoamine oxidase inhibitors (MAOIs)

1. Isocarboxazid (Marplan)
2. Phenelzine sulfate (Nardil)
3. Tranylcypromine sulfate (Parnate)

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C. Selective serotonin reuptake inhibitors (SSRIs)

1. Bupropion (Wellbutrin)
2. Fluoxetine (Prozac)
3. Sertraline (Zoloft)
4. Paroxetine (Paxil)

Precautions

A. Norepinephrine blockers or tricyclic antidepressants (TCAs)

1. Drug interactions: potentiate effects of anticholinergic drugs and CNS depressants (e.g., alcohol and sedatives)
2. Adverse effects: orthostatic hypotension, skin rash, drowsiness, dry mouth, blurred vision, constipation, urine retention, tachycardia, CNS stimulation in elderly clients (excitement, restlessness, incoordination, fine tremor, nightmares, delusions, disorientation, insomnia)
3. TCAs should not be given to clients with narrow-angle glaucoma
4. TCAs are contraindicated during the recovery phase of myocardial infarction or when client's history indicates cardiac dysrhythmias and cardiac conduction defects
5. There should be a minimum of 14 days between switching the TCA-resistant client to MAOIs to avoid hypertensive crisis
6. Abrupt discontinuation of TCAs can cause nausea, headache, and malaise

B. Monoamine oxidase inhibitors (MAOIs)

1. Drug interactions: MAOIs potentiate the effects of alcohol, barbiturates, anesthetic agents (cocaine), antihistamines, narcotics, corticoids, anticholinergics, and sympathomimetic drugs
2. Drug-food interactions: hypertensive crisis with vascular rupture, occipital headache, palpitations, stiffness of neck muscles, emesis, sweating, photophobia, and cardiac dysrhythmias may occur when neurohormonal levels are elevated by ingestion of foods with high tyramine content (pickled foods, avocado, banana, soy sauce, beer, wine, chicken livers, aged or natural cheese, chocolate)

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3. Adverse effects: orthostatic hypotension (CNS effect); skin rash (hypersensitivity); drowsiness (CNS depression); dry mouth, blurred vision, urinary retention, tachycardia (anticholinergic effect); sexual dysfunction (autonomic effect); nightmares, delusions, disorientation, insomnia (CNS stimulation)

C. Selective serotonin reuptake inhibitors (SSRIs)

1. Usually these drugs are administered before noon to avoid insomnia or sleep disturbances
2. Drug interactions: may interact with tryptophan; question concomitant use of diazepam, warfarin, and digoxin; should be discontinued 4 to 6 weeks before switching to MAOIs
3. Adverse effects: insomnia, headache, dry mouth, sexual dysfunction, anxiety, diarrhea and other gastrointestinal-tract complaints

Nursing Care of Clients Receiving Antidepressants

A. Assess for effectiveness of drug action

B. Maintain suicide precautions, especially as depression begins to lift; carefully monitor serum glucose in diabetics

C. Instruct client to:

1. Change positions slowly
2. Avoid engaging in hazardous activities
3. Utilize sugar-free chewing gum or hard candy to stimulate salivation
4. Check with physician before taking all OTC preparations or before consuming alcohol
5. Expect therapeutic effect to be delayed; may take 3 to 4 weeks for the TCAs and shorter for the MAOIs

D. MAOIs

1. Maintain dietary restrictions; avoid foods containing tyramine (aged cheeses, beer, wine, yogurt, soy sauce, chocolate)
2. Monitor client for occurrence of hypertensive crisis (occipital headache, palpitations, and stiff neck)

E. Avoid concurrent administration of adrenergic drugs

F. Evaluate client's response to medication and understanding of teaching

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Antimanic and Mood-Stabilizing Agents

Description

- A. Used to control the manic episode of mood disorders and for maintenance in clients with a history of mania
- B. Act by reducing adrenergic neurotransmitter levels in cerebral tissue through alteration of sodium transport
- C. Antimanic agents are available in oral capsules and tablets, both regular and sustained-release forms, and in concentrates
- D. Improves productivity by decreasing psychomotor activity or response to environmental stimuli
- E. Lithium, a norepinephrine uptake accelerator alters sodium transport in nerve and muscle cells and effects a shift in intraneural metabolism of norepinephrine

Types

A. Antimanic agents and mood stabilizers

1. Lithium carbonate (Eskalith, Lithane, Lithonate, Lithizine, Lithobid)
2. Lithium citrate (concentrate form)

B. Alternative antimanic agents and mood stabilizers

1. Carbamazepine (Tegretol)
2. Clonazepam (Klonopin)
3. Valproic acid (Depakene, Valproate sodium)

Precautions

A. Drug interactions: diuretics increase the reabsorption of lithium resulting in possible toxic effects; haloperidol and thioridazine when given with these drugs can result in encephalopathic syndrome; sodium bicarbonate or sodium chloride increase the excretion of lithium

B. Drug-food interaction: restriction of sodium intake increases drug substitution for sodium ions, which causes signs of hyponatremia (nausea, vomiting, PROPERTY OF www.aaroncyuntalan.com

diarrhea, muscle fasciculations, stupor, seizures); therefore salt intake must be maintained

C. Adverse effects: excess voiding and extreme thirst caused by drug suppression of antidiuretic hormone (ADH) function, which causes dehydration; slurred speech, disorientation, confusion, cogwheel rigidity, ataxia, renal failure, respiratory depression, and coma are toxic side effects; toxic effects can easily occur because the difference between the therapeutic level and toxic level is slight

Nursing Care of Clients Receiving Antimanic and Mood-stabilizing Agents

- A. Recognize that therapeutic effects will be delayed for several weeks
- B. Recognize that dehydration and hyponatremia predispose the client to lithium toxicity
- C. Assess therapeutic blood levels (0.6 to 1.2 mEq/L) during course of therapy
- D. Recognize that lithium is the drug of choice, but other agents such as carbamazepine or valproic acid may be used to treat acute mania
- E. Avoid concurrent administration of adrenergic drugs
- F. Maintain normal sodium intake during course of therapy
- G. Encourage increased fluid intake

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- H. Supervise ambulation if necessary
- I. Administer with meals to reduce GI irritation
- J. Teach the client that the nausea, polyuria, and thirst that occur initially will subside after several days
- K. Teach client and family to observe for signs of toxicity (diarrhea, vomiting, drowsiness, muscular weakness, ataxia, confusion, and tonic-clonic seizures)
- L. Evaluate client's response to medication and understanding of teaching
- M. Draw CBC every 2 to 4 weeks to monitor for WBC suppression and anemia noted with carbamazepine

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Sedative and Hypnotic Agents

Description

- A. Sedative and hypnotic agents are primarily used in general medicine rather than psychiatry
- B. Insomnia and hypersomnia, narcolepsy, and parasomnias, periodic leg movements (nocturnal myoclonus), and sleep apnea are among the disorders that are responsive to these agents
- C. Specific psychiatric conditions do predispose clients to insomnia (mood disorders, anxiety, and dementias)
- D. Central nervous system depressants have antianxiety effects in low dosages, produce sleep in high dosages, and general anesthetic-like states in very high dosages
- E. All hypnotic drugs probably alter either the character or the duration of REM sleep

Types

A. Benzodiazepines

See antianxiety agents

B. Barbiturates

1. Amobarbital (Amytal)
2. Butabarbital (Butisol)
3. Pentobarbital (Nembutal)
4. Phenobarbital (Luminal)
5. Secobarbital (Seconal)

C. Nonbenzodiazepines, nonbarbiturate propanediols

1. Meprobramate (Equanil, Miltown)
2. Tybamate (Solacen)

D. Quinazoline

Methaqualone (Quaalude)

E. Acetylinic alcohol

Ethchlorvynol (Placidyl)

F. Piperidinedione derivatives

1. Glutethimide (Doriden)

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2. Methyprylon (Noludar)

G. Chloral derivatives

1. Chloral hydrate (Noctec)
2. Chloral betaine (Beta-Chlor)
3. Triclofos (Triclos)

H. Azaspirodecanediones

Buspirone (BuSpar)

I. Historical anxiolytics

1. Ethanol (generic)
2. Ethchlorvynol (Placidyl)
3. Chloral hydrate (generic)
4. Paraldehyde (generic)
5. Meprobramate (Equanil, Miltown)
6. Tybamate (Tybatran, Solacen)
7. Secobarbital (Seconal)
8. Glutethimide (Doriden)

9. Methypylon (Noludar)
10. Methaqualone (Quaalude, Sopor)
11. Hydroxyzine (Atarax, Vistaril)
12. Promethazine (Phenergan)

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Precautions

- A. Sedative-hypnotic preparations are generally intended for either occasional or short-term use
- B. Hypnotic drugs have undesirable effects (physiologic addiction, fatal overdose potential, and dangerous interactions with other drugs)
- C. Barbiturate sedatives also speed up the metabolism of anticoagulants because they induce liver enzyme synthesis
- D. The historical anxiolytics listed above were used to treat anxiety prior to the development of benzodiazepines; many of these historical compounds were neither safe nor effective in long-term treatment
- E. Chloral hydrate and paraldehyde should be considered obsolete for treatment of alcohol withdrawal because of toxic effects
- F. The sedative-hypnotics are CNS depressants
- G. Tolerance develops to sedative and hypnotic agents; therefore, the client in the outpatient setting may resort to increasing doses to produce the desired effect

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- H. If taken in large dosages or for a long time period, physical and emotional dependence occurs
- I. Once physical dependence has developed, abrupt discontinuation of sedative-hypnotics leads to withdrawal
 1. Withdrawal characteristics: insomnia, weakness, muscle tremors, anxiety, irritability, sweating, anorexia, fever, nausea and vomiting, headache, incoordination, and restlessness
 2. After a few more days, severe symptoms of withdrawal may develop: postural hypotension, tinnitus, incoherence, delirium, psychosis, seizures, status epilepticus, cardiovascular collapse, loss of temperature regulation, and/or death
- J. To avoid withdrawal, it is important to slowly and gradually taper the dose with the same drug or one that is cross-tolerant

K. Excess ingestion

1. Any of the sedative-hypnotics may cause unconsciousness, coma, and death
 2. Addiction to these drugs alone or in combination has increased
 3. Removal of the drug from the stomach by aspiration, resuscitative measures (assisted ventilation, cardiac massage), hemodialysis of diffusible drug, vasopressor administration to counteract vascular collapse, and correction of acidosis
 4. Follow-up drug supervision to avoid repetition of the problem
 5. Initiate psychotherapy for depressed clients
- L. Refer to antianxiety agent precautions for additional information

Nursing Care of Clients Receiving Sedative-Hypnotics

- A. Assess for history of drug or alcohol abuse or suicide attempts by overdose because of the increased risk of abuse
- B. Assess for pregnancy and breastfeeding, as safe use has not been established
- C. Explore the client's perceptions and feelings about medications; clarify any misinformation, fears, etc.
- D. Review drug reference for current information about specific sedative-hypnotic
- E. Plan for client teaching about specific sedative-hypnotic agent
- F. Administer medication and monitor the response

G. Assess for undesired effects (respiratory depression and increased sedation, PROPERTY OF www.aaroncyuntalan.com

and hypotension)

- H. Teach the client about the agent and its correct use
- I. Supplement verbal teaching with appropriate written or audio-visual materials
- J. Administer controlled substances according to schedule restrictions
- K. Evaluate client's response to medication and understanding of teaching
- L. Refer to nursing care of clients receiving antianxiety agents for additional information

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