




Clinical Psychopharmacology

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Overview of Psychotropic Medications



Classification and Uses

Antidepressants

- Antidepressants help to improve depressed mood, and reduce hopelessness, helplessness, worthlessness, joylessness and suicidal plan or action.
 - Generally work on three neurotransmitters-dopamine, norepinephrine and/or serotonin
 - **SSRI-** citalopram (Celexa®), escitalopram (Lexapro®), fluvoxamine (Luvox®), paroxetine (Paxil®), fluoxetine (Prozac®), and sertraline (*Zoloft®)
 - **SNRI-** duloxetine (Cymbalta®), venlafaxine (Effexor®), desvenlafaxine (Pristiq®) and nefazadone (Serzone®)
 - **Tricyclics and norepinephrine reuptake inhibitors-** Clomipramine (Anafranil®), nortriptyline hydrochloride (Aventyl®), amitriptyline (Elavil®), nortriptyline (Pamelor®), Doxepin (Sinequan®) and imipramine (Tofranil®)
 - **MAO inhibitors-** selegiline (Emsam®), phenelzine sulfate (Nardil®) and tranylcypromine sulfate (Parnate®)
 - **Other-** mirtazapine (Remeron®), trazodone (Desryl®), and bupropion (Wellbutrin® / SR), atomoxetine (Strattera®)

* See effects crosswalk and dosage excel spreadsheet for additional data.

Antipsychotics

Antipsychotics

- Reduce positive psychotic symptoms such as hallucinations, delusions and paranoid thinking and some negative symptoms such as cognitive dulling, looseness of association and blunting of affect.
- Control mania associated with Bipolar Disorder
- They can also be used to improve impulse control

Older Generation “Typical” antipsychotics:

- haloperidol (Haldol®), thioridazine (Mellaril®), thiothixene (Navane®), fluphenazine (Prolixin®), pimozide (Orap®), trifluoperazine hydrochloride (Stelazine®), Chlorpromazine (Thorazine®) and perphenazine (Trilafon®)

Newer “Atypical” antipsychotics:

- aripiprazole (Abilify®), clozapine (Clozaril®), ziprasidone (Geodon®), risperidone (Risperdal®), quetiapine (Seroquel®) and olanzapine (Zyprexa®).

* See effects crosswalk and dosage excel spreadsheet for additional data.

Anxiolytics and Hypnotics

- **Anxiolytics reduce anxiety and panic on an as needed basis:**
 - Benzodiazepines:
 - lorazepam (Ativan®), clonazepam (Klonopin®), chlordiazepoxide (Librium®), oxazepam (Serax®), clorazepate dipotassium (Tranxene®), alprazolam (Xanax®) and diazepam (Valium®)
 - buspirone (Buspar®),
 - hydroxyzine (Atarax®)
- **Hypnotics or sleep aids:**
 - Over the Counter (OTC)
 - diphenhydramine (Benadryl®)
 - melatonin
 - GABA receptor modulators:
 - zolpidem (Ambien®), eszopiclone (Lunesta®), zaleplon (Sonata®)

**See effects crosswalk and dosage excel spreadsheet for additional data.*

Stimulants and Alpha-adrenergics

- **Stimulants:**
 - Reduce hyperactivity, impulsivity and disruptiveness associated with ADHD with improved attention span
 - Available in short, medium and longer acting forms
 - Amphetamines
 - dextroamphetamine saccharate (Adderall®)
 - Methylphenidates
 - methylphenidate hydrochloride (Concerta®, Metadate®, Methylin® and Ritalin®), dexamethylphenidate hydrochloride (Focalin®)
- **Alpha-adrenergics**
 - Improve impulse control and hyperactivity
 - clonidine hydrochloride (Clonidine®) and guanfacine HCl (Tenex®)
- **Cognitive Enhancers**
 - May contribute to improved mood, behavior and impulse control in Dementia where they are well tolerated
 - donepezil (Aricept®), rivastigmine (Exelon®), memantadine (Mamenda®)

** See effects crosswalk and dosage excel spreadsheet for additional data.*

Other Psychotropic Agents

- **Anticholinergic/Antiparkinsonian**
 - Help treat the side effect of EPS (extra pyramidal symptoms)
 - Dopinergic Types- amantadine hydrochloride (Symmetrel®)
 - Anti-cholinergic Types- trihexyphenidyl hydrochloride (Artane®) and benztropine mesylate (Cogentin®)
- **Beta Blockers**
 - Anxiolytic and target impaired impulse control
 - propranolol hydrochloride (Inderal®) and metoprolol succinate (Toprol®/XL)
- **Mood Stabilizers:**
 - Help to reduce mania and severe depression and to prevent relapse
 - lithium (Lithobid® / Eskalith®) – GOLD STANDARD
 - Atypical anti-psychotics as previously discussed
 - Antiepileptics
 - valproic acid (Depakote®), lamotrigine (Lamictal®), gabapentin (Neurontin®), carbamazepine (Tegretol®), oxcarbazepine (Trileptal®), and topiramate (Topamax®)

**See effects crosswalk and dosage excel spreadsheet for additional data.*



Additional Considerations

Treatment Objectives

Goals of Treatment

Symptom reduction

Improved emotional stability

Relapse prevention

- Medication should first match symptoms and then diagnosis.
 - It should be symptom driven before it is diagnosis driven.
 - Utilize symptom complexes to guide diagnosis
- Risk Benefit Analysis
 - Desire that the positive effects of using the given medication is greater than the potential negative side effects.

Co-occurring Disorders

- Depression and Anxiety
- ADHD
 - Disruptive Disorders
 - Depressive Disorders
 - Anxiety Disorders
- PTSD
 - Depressive Disorder
 - Anxiety Disorder
 - Dissociative Disorder
- Anorexia and Bulimia Nervosa
 - OCD
 - Bipolar Disorder
 - Depressive Disorder
- It is important to note that many disorders have substance abuse as a co-occurring disorder
- Combine psychotherapy with medication whenever possible

Co-occurring Disorders (Continued)

- Medical Co-morbidity
 - Asthma
 - Colitis
 - Diabetes
 - Sickle Cell Anemia
 - Seizure Disorder
- Some diseases mimic or cause mental health syndromes
 - Thyroid disease and mood disorder
 - Hypoglycemia (low sugar) and intermittent explosive disorder
- Medical issues increase complexity and require increased consultation

“Black Box” Warnings

- A “Black Box” warning by the FDA indicates that the drug *potentially* carries more risks than other prescription drugs in its class.

Lithium Toxicity

lithium toxicity closely related to serum lithium levels and can occur at doses close to therapeutic levels; start tx only if facility available for prompt accurate serum lithium determinations

Lamotrigine (Lamictal®) Serious Rash

serious rashes requiring hospitalization and D/C tx incl. Stevens-Johnson syndrome, rare cases of toxic epidermal necrolysis, and rash-related deaths; incidence w/ adjunctive epilepsy tx 0.8% in <16 yo and 0.3% in adults, bipolar and other mood disorder incidence 0.08% as initial monotherapy and 0.13% as adjunctive tx; pediatric indications only for Lennox-Gastaut syndrome-assoc. seizures or partial seizures; most life-threatening rashes occur in 1st 2-8wk of tx w/ isolated cases after prolonged tx; though benign rashes may also occur D/C tx at 1st sign of rash unless clearly not drug related; D/C tx may not prevent rash from becoming life-threatening or permanently disabling or disfiguring

Medication Adherence

- **Requires follow-up and frequent checking.**
 - The number one reason that medication is ineffective is due to partial or non-adherence.
 - Monitor the attitudes of the child, family, other medication givers (school nurses programs, out of home staff and care givers).
 - Check whether the need for liquid, patch, or injectable medication is needed daily or even weekly or monthly.

Clinical & Laboratory Monitoring

- **Before you start any medication on a woman of child-bearing age, order a urine pregnancy test to ensure she is NOT pregnant!**
- Antidepressants
 - **SSRIs**
 - No lab monitoring required. However, order the appropriate labs if the patient experiences bleeding, hyponatremia, or osteoporosis due to the SSRI.
 - **venlafaxine XR (Effexor XR®)**
 - Blood pressure should be checked periodically after starting or increasing the dose. Risk of hypertension is dose-dependent.
 - **duloxetine (Cymbalta®)**
 - Causes elevation of alanine transaminase (ALT) in rare cases.

Clinical & Laboratory Monitoring (Continued)

- Antidepressants (continued)

- **Tricyclics**

- In patients with pre-existing cardiac disease, order an ECG before starting and after reaching a therapeutic dose.
- There is some evidence endorsing the value of monitoring the serum level of nortriptyline (Pamelor®), with a therapeutic “window” of 50-150 mg/ml correlating with the best antidepressant results.

- **MAOIs**

- Phenyelzine (Nardil®) can cause liver failure in case reports

Clinical & Laboratory Monitoring (Continued)

- Antipsychotics

- *Metabolically “dirty” antipsychotics:*

- olanzapine (Zyprexa®), clozapine (Clozaril®), risperidone (Risperdal®), quetiapine (Seroquel®), chlorpromazine (Thorazine®), and thioridazine (Mellaril®).
- **Weight:** Determine BMI at baseline, once a month for the first three months, then every three months.
- **Glucose:** Baseline fasting glucose (below 100 is normal, 100-125 is pre-diabetes, above 126 is diabetes).
- **Lipids:** Baseline fasting lipid panel: total cholesterol, low-density lipoprotein (LDL) and HDL cholesterol, and triglyceride levels.

- *Metabolically “clean” antipsychotics:*

- aripiprazole (Abilify®), ziprasidone (Geodon®), haloperidol (Haldol®), perphenazine (Trilafon®)
- **Weight:** Baseline, 6 months, then yearly.
- **Glucose:** Baseline glucose (fasting not necessary); then yearly.
- **Lipids:** Baseline fasting lipid panel every 2 years

Clinical & Laboratory Monitoring (Continued)

- Antipsychotics (Continued)

- **Metabolic syndrome**

- the combination of abdominal obesity, elevated fasting plasma glucose levels, elevated triglyceride levels, low HDL cholesterol levels, and hypertension.

- **ECG Monitoring**

- thioridazine (Mellaril®) and pimozide (Orap®) should not be prescribed for anyone with known heart disease.
- Ziprasidone (Geodon®) can be prescribed in patients with heart disease, but a baseline and follow-up ECGs are recommended.

- **Prolactin**

- risperidone (Risperdal®) and most first generation “typical” antipsychotics
 - For women, ask about changes in menstrual flow or libido, or whether they have noticed discharge from breasts.
 - For men, ask about change in libido or sexual dysfunction.



Diagnosis and Side Effect Charts

Diagnosis

Key

- Some
- Partial
- Good

Anti-Anxiety Agents Anti Depressants
 SSRI / SNRI MAO Inhibitors
 Wellbutrin, Tricyclics & Norepinephrine Reuptake Inhibitors
 Atypical Typical Anti Psychotics
 Hypnotics
 Mood Stabilizers Stimulants Alpha-adrenergics Beta-Blockers AntiParkinsonians Alcohol Deterrents

DSM-IV Category Diagnosis

| DSM-IV Category Diagnosis | Anti-Anxiety Agents | SSRI / SNRI | MAO Inhibitors | Wellbutrin, Tricyclics & Norepinephrine Reuptake Inhibitors | Atypical | Typical | Hypnotics | Mood Stabilizers | Stimulants | Alpha-adrenergics | Beta-Blockers | AntiParkinsonians | Alcohol Deterrents |
|--------------------------------------|---------------------|-------------|----------------|---|----------|---------|-----------|------------------|------------|-------------------|---------------|-------------------|--------------------|
| ADD/ADHD | | | | S | | | | | G | S | | | |
| Disruptive Disorder | | | | | P | | | P | S | S | S | | |
| PTSD | S | S | | S | S | | P | | | | | | |
| Anxiety and Phobia | S | S | S | S | | | | | | | S | | |
| Major Depression/Dysthymia | P | G | G | G | | | S | | | | | | |
| OCD | | P | P | P | S | | | | | | | | |
| Bi-Polar Spectrum/ANJ Mood Disorders | | | S | | P | S | S | P | | | | | |
| Psychosis | | | | | G | G | | | | | | | |
| Schizo-affective Disorder | | | | | P | S | | S | | | | | |
| PDD | | S | | S | S | | | | | | | | |
| Tic Disorder | | | | | P | S | | | | P | | | |
| EPS | | | | | | | | | | | | P | |
| Poly-Substance Abuse | | | | | | | | | | | | | |
| Anorexia/Bulemia | | S | | | | | | S | | | | | |

Drug Side Effects

Key

- Some
- Partial
- Great

Anti-Anxiety Agents Anti Depressants
 SSRI / SNRI MAO Inhibitors
 Wellbutrin, Tricyclics & Norepinephrine Inhibitors Anti Psychotics
 Atypical Typical Hypnotics
 Mood Stabilizers Stimulants Alpha-adenergics Beta-Blockers Anti-Parkinsonians Alcohol Deterrents

Side Effects page 1

| Side Effect | Anti-Anxiety Agents | SSRI / SNRI | MAO Inhibitors | Wellbutrin, Tricyclics & Norepinephrine Inhibitors | Atypical | Typical | Hypnotics | Mood Stabilizers | Stimulants | Alpha-adenergics | Beta-Blockers | Anti-Parkinsonians | Alcohol Deterrents |
|---|---------------------|-------------|----------------|--|----------|---------|-----------|------------------|------------|------------------|---------------|--------------------|--------------------|
| Dry Mouth | | | | | | | | | | | | S | |
| EPS | | | | | S | P | | | | | | | |
| Agitation and Hypomania | S | S | | S | | | | | S | | | | |
| Suicidal Thoughts | | S | | S | | | | | | | | | |
| Sedation | P | S | | P | S | S | G | S | | P | P | | |
| Gastro-Intestinal Distress | | S | P | S | S | | | S | S | | | | S |
| Weight Gain | | S | | P | P | | | | | | | | |
| Rashes - Especially sun related | S | S | | S | | | | S | | | | | |
| Sexual side effects | | P | | S | | | | | | | | | |
| Increased Prolactin level- breast leakage | | | | | S | S | | | | | | | |
| Higher sugars/lipids | | | | | P | S | | | | | | | |
| Moodiness/irritable | S | S | | S | | | | | P | S | | | |
| Dizziness | S | | S | S | S | | | | | S | S | S | |
| Seizure risk | | S | | S | | | | | | | | | |
| Poor appetite | | | | | | | | | P | | | | |
| Poor sleep | | S | | | | | | | P | | | | |
| Pulse changes | | S | | P | | | | S | P | P | | | |
| Arrhythmia | | | | S | | | | S | | | | | |

Drug Side Effects

Key

- Some
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Anti-Anxiety Agents Anti Depressants
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 Wellbutrin, Tricyclics & Norepinephrine Reuptake Inhibitors
 Atypical Typical Anti Psychotics
 Hypnotics Mood Stabilizers Stimulants Alpha-adenergics Beta-Blockers Anti-Parkinsonians Alcohol Deterrents

Side Effects page 2

| Side Effect | Anti-Anxiety Agents | SSRI / SNRI | MAO Inhibitors | Wellbutrin, Tricyclics & Norepinephrine Reuptake Inhibitors | Atypical | Typical | Hypnotics | Mood Stabilizers | Stimulants | Alpha-adenergics | Beta-Blockers | Anti-Parkinsonians | Alcohol Deterrents |
|---|---------------------|-------------|----------------|---|----------|---------|-----------|------------------|------------|------------------|---------------|--------------------|--------------------|
| High BP | | | G | | P | | | | | | | | |
| Birth control Interference | | | | | | | | | | P | | | |
| Lab abnormalities | | | | | S | S | | | | S | | | |
| Liver toxicity | | | S | | S | | | | | S | | | |
| Decreased kidney function | | | | | | | | | | S | | | |
| White cell count reduction | | | | | S | S | | | | S | | | |
| Reduction in thyroid or para-thyroid function | | | | | | | | | | S | | | |
| Tartive Dyskinesia | | | | | | P | | | | | | | |
| Dehydration | | | | | S | | | | | | | | |
| Addiction | | G | | | | | S | | | | | | |
| NMS (Neuroleptic Malignant Syndrome) | | | | | | S | | | | | | | |
| Blurred Vision | | | | | | | | | | | | S | |
| Headache | | | | | S | S | | | | S | | | |
| Tics | | | | | | | | | | S | | | |
| Pregnancy Danger | P | S | S | S | S | S | S | | | G | | | |



Thank You For Your Attention



Post-Test Questions

Question 1

Why treat with Antipsychotics?

- A) Reduce both positive and negative symptoms of Schizophrenia, such as hallucinations, paranoid thinking and blunting of affect.
- B) To control mania associated with Bipolar Disorder.
- C) To improve impulse control.
- D) All of the above.

Question 2

What three primary neurotransmitters do antidepressants target?

- A) Dopamine, Serotonin and Norepinephrine
- B) Dopamine, Alpha-Adrenergic and Norepinephrine
- C) Dopamine, Serotonin and Beta-Blockers
- D) Alpha-Adrenergic, Norepinephrine and Beta-Blockers

Question 3

True or False: Medication should first match diagnosis, and then the symptoms.

- True
- False

Question 4

Which of the following is/are one of the three primary treatment goals?

- A) Symptom exacerbation
- B) Increased emotional instability
- C) Relapse prevention
- D) None of the above

Question 5

What is a Risk Benefit Analysis?

- A) Weighing the cost of the medication against possible benefits of the medication.
- B) Ensuring that the potential positive effects of using the given medication are greater than the potential negative side effects.
- C) The analysis of a patient population in order to treat those at the highest risk of death, first.
- D) None of the above.

Question 6

True or False: The primary reason that medication is ineffective is due to partial or non-adherence.

- True
- False

Question 7

Metabolic syndrome must be monitored with which of the following class(es) of drugs?

- A) Antidepressants
- B) Antipsychotics
- C) Anxiolytics
- D) Stimulants
- E) All of the above

Question 8

True or False: A “Black Box” warning by the FDA indicates that the drug *potentially* carries more risks than other prescription drugs in its class.

- True
- False

Question 9

What test should be ordered before starting any medication on a woman of child-bearing age?

- A) CT scan
- B) EKG
- C) Urine Pregnancy Test
- D) Fasting Glucose Level
- E) None of the above

Question 10

True or False: Combine psychotherapy with medication whenever possible

- True
- False