PSYCHOTROPIC MEDICATIONS

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OBJECTIVES

1. Identify psychotropic medications and the typical usages
2. Identify effective methods for the practical application of concepts related to improving the delivery of services for persons with developmental disabilities
3. Identify advances in clinical assessment and management of selected healthcare issues related to persons with developmental disabilities

WHAT IS PSYCHOTROPIC MEDICATION?

• Medication used to treat emotional and behavioral health symptoms and disorders
• Act on the CNS and affect mood, thoughts, and behaviors
**BEST PRACTICES**

Prior to starting a psychotropic medication:
- A current DSM diagnosis should be made
- Clearly defined target symptoms and treatment goals for the use of psychotropic medications should be identified
- Potential side effects and overall benefit to risk ratio should be considered

Once medication has been started:
- Start low, go slow – start with the lowest recommended dose, then slowly increase until desired effect is reached (or until side effects become intolerable)
- Monitor for improvement as well as adverse side effects

**BEST PRACTICES**

- One medication for specific symptoms should usually be tried before multiple
- Only one medication should be changed at a time, unless there is a clinically appropriate reason to do so
- The use of “PRN” (as needed) prescriptions is discouraged
- The potential for emergent suicidality should be carefully evaluated and monitored, particularly in depressed individuals, as some medications carry a black box warning for increased suicidal ideation
- Before adding additional psychiatric medications, the patient should be assessed for adequate medication adherence, accuracy of the diagnosis, occurrence of comorbid disorders, influence of psychosocial stressors

**ROUTES OF ADMINISTRATION**

- Oral – most desired and most convenient
- Sublingual – administered under the tongue or side of cheek
- Subcutaneous – injection into fat tissue
- Intramuscular injections – allows for rapid administration
- Intravenous (IV) injections – most rapid form of administration
- Inhalation – provides rapid onset
- Transdermal – skin administration, typically administered via a patch
QUESTIONS TO ASK

1. Is this medication addictive? Can it be abused?
2. What is the route of administration? How often does it need to be taken?
3. Does the patient need laboratory tests before taking or while on the medication?
4. Who will monitor the patient’s progress on the medication and how often?
5. Does the patient need to avoid any other medications or foods while taking?
6. Does the medication interact with other medications the patient is taking?
7. Does the medication affect any physical health problems the patient has?
8. What are the side effects associated with the medication?

CLASSES OF MEDICATIONS

- Stimulants – used to treat ADHD
- Antidepressants – used to treat depression, anxiety, OCD
- Antipsychotics – used to treat schizophrenia, intellectual/developmental disabilities, bipolar disorder, severe depression
- Mood Stabilizers – used to treat bipolar disorder, schizophrenia
- Anxiolytic – used to treat anxiety, panic disorder

STIMULANTS
**OVERVIEW**

- First line of therapy for ADHD
- Effective at reducing symptoms of inattention, hyperactivity, and impulsivity
- Generally see response within the first week
- Start at low dose, gradually increase at steady intervals
- Method of action in treating ADHD is not well understood
  - Block NE and DA reuptake
  - Promote DA release
  - Increase in DA results in improved attention and motivation, decreased distractibility
- All stimulants carry a black box warning for abuse and dependence

**SHORT ACTING STIMULANTS**

- Side effects include: loss of appetite, weight loss, sleep problems, irritability, tics
- Require frequent dosing due to short duration

<table>
<thead>
<tr>
<th>Drug Name</th>
<th>Generic Name</th>
<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall</td>
<td>Dextroamphetamine Sulfate</td>
<td>4-6 hours</td>
</tr>
<tr>
<td>Dexedrine</td>
<td>Dextroamphetamine Sulfate</td>
<td>4-6 hours</td>
</tr>
<tr>
<td>Focalin</td>
<td>Dexmethylphenidate HCL</td>
<td>4-6 hours</td>
</tr>
<tr>
<td>Methylin</td>
<td>Methylphenidate HCL</td>
<td>3-4 hours</td>
</tr>
<tr>
<td>Ritalin</td>
<td>Methylphenidate HCL</td>
<td>3-4 hours</td>
</tr>
</tbody>
</table>
**INTERMEDIATE AND LONG-ACTING STIMULANTS**

- Similar side effects to SA drugs (loss of appetite, weight loss, sleep problems, irritability, tics)
- Long-acting medications may have greater effects on appetite and sleep

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<tr>
<th>Drug Name</th>
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<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Adderall XR</td>
<td>Dextroamphetamine-Sulf-Saccharate</td>
<td>8-12 hours</td>
</tr>
<tr>
<td>Daytrana Transdermal</td>
<td>Methylphenidate</td>
<td>up to 10 hours</td>
</tr>
<tr>
<td>Focalin XR</td>
<td>Dexmethylphenidate HCL</td>
<td>6-10 hours</td>
</tr>
<tr>
<td>Metadate ER</td>
<td>Methylphenidate HCL</td>
<td>6-8 hours</td>
</tr>
<tr>
<td>Ritalin LA</td>
<td>Methylphenidate HCL</td>
<td>6-10 hours</td>
</tr>
<tr>
<td>Quilivant XR</td>
<td>Methylphenidate HCL</td>
<td>12 hours</td>
</tr>
<tr>
<td>Vyvanse</td>
<td>Lithiumsulfinamide Dimesylate</td>
<td>10-12 hours</td>
</tr>
</tbody>
</table>

**NONSTIMULANT OPTIONS**

- Second-line treatments
- Can be effective in patients with poor response to stimulants, comorbid anxiety, comorbid substance use disorder, intolerance to stimulants' side effects, tic disorders
- Side effects include: fatigue, dizziness, dry mouth, irritability, headaches, low blood pressure

<table>
<thead>
<tr>
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<th>Duration</th>
</tr>
</thead>
<tbody>
<tr>
<td>Catapres</td>
<td>Clonidine HCL</td>
<td>4-6 hours</td>
</tr>
<tr>
<td>Intuniv</td>
<td>Guanfacine HCL</td>
<td>24 hours</td>
</tr>
<tr>
<td>Kapvay</td>
<td>Clonidine HCL</td>
<td>12 hours</td>
</tr>
<tr>
<td>Strattera</td>
<td>Atomoxetine HCL</td>
<td>24 hours</td>
</tr>
<tr>
<td>Tenex</td>
<td>Guanfacine HCL</td>
<td>6-8 hours</td>
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</tbody>
</table>

**ANTIDEPRESSANTS**
OVERVIEW

- Typically requires 4-6 weeks to see full effects
- Appear to restore the neurotransmitter balance in the brain between serotonin, norepinephrine, and possibly dopamine
- 60-70% efficacy no matter which agent is selected
- DO NOT abruptly discontinue antidepressants (exception – Prozac)
- If patient on two antidepressants, should not be from same class
- Serotonin Syndrome — occurs when high levels of serotonin accumulate in the body
  - Hallmark symptom is diarrhea
  - Other symptoms include: mental status changes, agitation, muscle spasm, sweating, incoordination

DO NOT abruptly discontinue antidepressants (exception – Prozac)

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TYPES OF ANTIDEPRESSANTS

Selective Serotonin Reuptake Inhibitors (SSRIs):
- Selectively blocks reuptake of serotonin to increase the amount of serotonin available
- NOT fatal in overdose
- Used to treat depression, anxiety, OCD, PTSD, panic disorder
- First line of treatment for anxiety
- Some can be used to treat OCD (typically need a higher dose)
- Side effects: weight loss/weight gain, sedation, decreased sex drive

Examples:
- Paxil (paroxetine)
- Zoloft (sertraline)
- Celexa (citalopram)
- Lexapro (escitalopram)
- Prozac (fluoxetine)

Serotonin and Norepinephrine Reuptake Inhibitors (SNRIs):
- Used to treat depression and anxiety
  - Some can be used to treat OCD
  - Side effects: nausea, dry mouth, dizziness, headache, sweating, decrease sexual desire, loss of appetite

Examples:
- Effexor (venlafaxine)
- Pristiq (desvenlafaxine)
- Cymbalta (duloxetine)
- Wellbutrin (buproprion)

OCD — Obsessive-Compulsive Disorder

- Hallmark symptom is obsessions
- Other symptoms include: compulsions, anxiety, depression, insomnia

Examples:
- Paxil (paroxetine)
- Zoloft (sertraline)
- Celexa (citalopram)
- Lexapro (escitalopram)
- Prozac (fluoxetine)
TYPES OF ANTIDEPRESSANTS

- **Tricyclic Antidepressants (TCAs)**
  - Increase the reuptake of norepinephrine and/or serotonin
  - Can be fatal in overdose (20 mg/kg)
  - May be used in combination with SSRIs to help patients sleep
  - Side effects: anticholinergic effects, lowered seizure threshold
  - **Examples:**
    - Elavil (amitryptiline)
    - Pamelor (nortriptyline)
    - Sinequan (doxepin)
    - Tofranil (imipramine)
    - Asendin (amoxapine)
    - Norpramin (desipramine)
    - Surmontil (trimipramine)
    - Vivactil (protriptyline)
    - Anafranil (clomipramine) – can treat OCD

- **Monamine Oxidase Inhibitors (MAOIs)**
  - Impair degradation of norepinephrine, serotonin, and dopamine
  - Not used for anxiety
  - Must have at least two-week washout period from switching from MAOI to another antidepressant (or vice versa)
  - Should not be used in combination with another class of antidepressants
  - Can switch bipolar patients into mania (restlessness and agitation)
  - **Examples:**
    - Nardil (phenelzine)
    - Parnate (tranylcypromine)

- **Atypical Antidepressants**
  - Desyrel (trazodone)
    - Inhibits serotonin reuptake, often used in combination with SSRIs for insomnia
  - Wellbutrin (bupropion)
    - Mild dopamine reuptake inhibitor, no effect on serotonin or norepinephrine
    - Contraindicated in patients with seizure disorders and psychosis
    - Side effects: weight loss, insomnia, agitation, headache, nausea
  - Remeron (mirtazapine)
    - Enhances central norepinephrine and serotonin activity
    - Good “add on” therapy
ANTIPSYCHOTICS

OVERVIEW

• Used to control psychotic symptoms (hallucinations/delusions)
  - Schizophrenia
  - Short-term use to control psychotic symptoms or mania
  - Used for individuals who can't tolerate mood stabilizers
  - Some used “off label” as sedatives (insomnia, anxiety, agitation)

• Bipolar Disorder
  - Often used as an “add on” to an SSRI or SNRI for refractory depression

• Severe Depression
  - Used to manage symptoms such as irritability, aggression, self-injurious behavior

• Developmental and Intellectual Disabilities
  - Used to manage symptoms such as irritability, aggression, self-injurious behavior

OVERVIEW

• Two classes: typical and atypical
  - Typical – bad side effect profile
  - Atypical – newer, fewer side effects

• Treatment algorithm for schizophrenia:
  1. Start with an atypical (first line)
  2. Switch atypicals (preferred) or try typical
  3. Change to clozapine
  4. Add atypical or typical to clozapine
**TYPICAL ANTIPSYCHOTICS**

- Work by blocking dopaminergic receptors
- Side effects – anticholinergic effects, sedation, weight gain
- Extrapyramidal side effects (EPS) – involuntary muscle contractions, focal movements, tremors, restlessness

<table>
<thead>
<tr>
<th>Examples</th>
<th>Side Effects</th>
</tr>
</thead>
<tbody>
<tr>
<td>Chlorpromazine (Thorazine)</td>
<td>Thallium (excrees)</td>
</tr>
<tr>
<td>Thioridazine (Mellaril)</td>
<td>Haloperidol (Haldol)</td>
</tr>
<tr>
<td>Fluphenazine (Prolixin)</td>
<td>Loxapine (Loxitane)</td>
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**ATYPICAL ANTIPSYCHOTICS**

- First line of treatment for schizophrenia, but also used for MDD, Bipolar, ID/DD
- Fewer side effects than typical antipsychotics
- Some require WBC monitoring (e.g., clozapine)
- Side effects: weight gain/diabetes risk, sedation, hypotension, sexual dysfunction

<table>
<thead>
<tr>
<th>Examples</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mixed Agonists</td>
</tr>
<tr>
<td>Clozapine (Clozaril)</td>
</tr>
<tr>
<td>Olanzapine (Zyprexa)</td>
</tr>
<tr>
<td>Quetiapine (Seroquel)</td>
</tr>
</tbody>
</table>

  | Serotonin-Dopamine Antagonist |
  | Risperidone (Risperdal) |
  | Paliperidone (Invega) |
  | Ziprasidone (Geodon) |

  | Dopamine Partial Agonist/Serotonin Antagonist |
  | Aripiprazole (Abilify) |
  | Olanzapine (Zyprexa) |
  | Iloperidone (Fanapt) |

**MOOD STABILIZERS**
OVERVIEW

- Medications that treat and prevent the highs (mania) and lows (depression) associated with Bipolar Disorder, Schizophrenia, Borderline Personality Disorder
- Lithium
- Valproic Acid (Depakote, Depakote ER)
- Carbamazepine (Tegretol)
- Atypical Antipsychotics
  - Typically used for acute treatment for patients with Bipolar Disorder
  - Long-term use for Schizophrenia
  - Loxitral (lamotrigine)

LITHIUM

- Gold standard as mood stabilizer
- Used as long-term maintenance therapy
- Requires routine monitoring
- Advantages: controls mania without “drugged” feeling, normalizes mood, decreases mood swings, less severe relapses, cheap
- Disadvantages: narrow therapeutic range, patient compliance, delayed onset (5-10) days, rapid cyclers are poor responders, requires frequent lab monitoring (expensive)
- Side effects: tremor, increased thirst/urination, GI upset, weight gain, hypothyroidism, acne

OTHER MEDICATIONS

- Valproic Acid (Depakote)
  - Faster onset than Lithium (3-5 days)
  - More effective for rapid cyclers, mixed episodes
- Carbamazepine (Tegretol)
  - Onset: 1-2 weeks
  - Good “add-on” therapy
  - More effective for rapid cyclers, mixed episodes
- Lamotrigine (Lamictal)
  - Used as maintenance treatment of Bipolar I Disorder
  - More effective as “add-on” therapy
  - No need to monitor levels
ANXIOLYTIC OVERVIEW

Treatment Options for Anxiety

Short-Term
- Benzodiazepines

Long-Term
- Buspirone (BuSpar)
- SSRIs
- SNRIs
- TCAs
- Mood stabilizers
- Beta blockers
- Other medications

BENZODIAZEPINES

- Anxiolytic agents that bind to benzodiazepine receptors to enhance GABA effects
- Advantages: rapid relief, very effective, used as needed
- Disadvantages: tolerance, dependence, addiction potential
- Side effects: sedation, dizziness, weakness, impaired memory/recall, tolerance/dependence
- Place in therapy: start in combination with serotonergic drug, slowly taper after 4-12 weeks

Examples:
- Xanax (alprazolam)
- Valium (diazepam)
- Librium (chlordiazepoxide)
- Ativan (lorazepam)
- Klonopin (clonazepam)
- Serax (oxaepam)
- Tranxene (clorazepate)
BUSPIRONE (BUSPAR)

- Has anxiolytic and antidepressant properties (not a benzodiazepine)
- Affects serotonin, dopamine, norepinephrine, acetylcholine, and GABA systems

Advantages
- Non-sedating, no interactions with CNS depressants (including alcohol), minimal side effects
- No dependence – often prescribed to individuals with a history of substance use over benzos

Disadvantages
- Patients often do not feel it is effective due to slow onset and lack of a "buzz"
- May take 2-6 weeks to get full effect
- Multiple daily dosing, chronic med

- Used for mild-moderate generalized anxiety, Borderline Personality Disorder
- Can improve symptoms of depression in GAD patients
- Has been used for patients with ADHD who don't respond well to stimulants

BETA BLOCKERS

- Used for treatment of social anxiety or PTSD
- Example: may take beta blocker before giving a presentation or speech
- In patients with social anxiety, may take beta blocker prior to attending social event
- Reduces somatic symptoms of anxiety (sweatiness, shaky hands, dizziness)
- Side effects: drowsiness/fatigue, hypotension, nausea, vomiting, diarrhea
- Examples: Inderal (propranolol), Lopressor (metaprolol)

NOW THAT YOU KNOW EVERYTHING ABOUT PSYCH MEDS...

- Compared to child, adolescent and adult psychiatric populations, there has been relatively little psychopharmacologic research conducted in individuals with intellectual and developmental disabilities (IDDs).
- Therefore, some of the information in this presentation has been extrapolated from the general psychiatric literature.
The two most common reasons for use of psychotropic medications in individuals with intellectual and developmental disabilities (IDDs) are to treat psychiatric disorders and/or to try to reduce/eliminate behaviors that are variously described as challenging, disruptive, aggressive, self-injurious, repetitive, or otherwise inappropriate.

There has been an ongoing debate as to the extent of overlap between mental health problems and problem behaviors. There have been numerous studies showing that psychiatric morbidity among people with IDDs is associated with higher levels of behavioral problems. However, other studies have not found any association between psychiatric morbidity and problem behaviors.

It needs to be kept in mind that oversimplified, “either-or” conceptualizations do not address the complexities of the systems surrounding all the various factors that impact on a person’s mental health and behavior.

In the U.K., the National Institute for Health and Care Excellence (NICE) published (January, 2014) their Quality Standards: Autism (http://www.nice.org.uk/guidance/qs51).

- In Quality statement 6, it’s stated that “Drug treatments have been shown to be ineffective in addressing the core features of autism.”
- In Quality statement 7, readers are reminded that “The causes of behaviour...can involve physical health conditions, mental health problems and environmental factors...”

In a study by Rosenberg, et al (2011), the lifetime prevalence of a psychiatric disorder by age 16 in youth with autism spectrum disorders (ASD) was determined to be 49% in contrast to reported rates for the general population of 37%.

Davies & Oliver (2013) statistically analyzed published data regarding the age-related prevalence of aggression and self-injury in persons with IDDs. The analysis indicated that the relative risk of self-injury, and to a lesser extent aggression, increased with age until mid-adulthood, with some indication of a curvilinear relationship for self-injury (significantly increasing with age up to about ages 30–40, with notable decrease after the age of 50).
**BACKGROUND**

- The atypical antipsychotics (AAs) are commonly prescribed for the management of serious behavioral disturbance in individuals with ASDs and/or IDDs.

- Risperidone (for ages 5–16 years) and aripiprazole (Abilify) (for ages 6–17 years) are the only two FDA-approved medications for irritability (aggression, self-harm, tantrums and/or mood lability) in children and adolescents with autism.

- Coury, et al (2012) found that, in a sample of youth from the Autism Treatment Network, the use of AAs was common in ASDs: – 4% of 3– to 5-year-olds; – 14% of 6– to 11-year-olds; and – 23% of 12– to 17-year-olds… were taking atypical antipsychotic medications.

**GOOD NEWS...IT DOES WORK**

Ching & Pringsheim (2012) concluded that “Evidence from two randomized controlled trials suggests that aripiprazole can be effective in treating some behavioral aspects of autism, particularly those related to irritability. After treatment with aripiprazole, children showed less irritability, stereotypies, and hyperactivity.”

- In the first prospective randomized clinical trial comparing the safety and efficacy of aripiprazole and risperidone (Ghanizadeh, et al, 2013), both lowered Aberrant Behavior Checklist (ABC) scores. The safety and efficacy of aripiprazole (mean dose 5.5 mg/day) and risperidone (mean dose 1.12 mg/day) were comparable.

**WITH EVERY GOOD...**

- There are several well-known adverse effects of psychotropic medications. The most common ones that are of especial concern are:

  - Metabolic abnormalities (weight gain, hyperglycemia and/or hyperlipidemia);
  - Hyperprolactinemia;
  - Extrapyramidal symptoms.
POLYPHARMACY TREATMENT

According to the National Library of Medicine - Medical Subject Headings, polypharmacy is defined as "the use of multiple drugs administered to the same patient, most commonly seen in elderly patients. It includes also the administration of excessive medication."

In recent years, polypharmacy has become more common, even in countries in which psychotropic prescribing has traditionally been conservative.

In a 1999 study, Martin, et al, examined prescribing patterns in the treatment of higher-functioning pervasive developmental disorders (HFPDDs).

Results showed that:
- 55% were currently on a psychotropic drug;
- 22.9% were on 2 psychotropic drugs;
- 4.6% were on 3 psychotropic drugs;
- 1.8% were on 4 psychotropic drugs;
- 29.3% were on ≥2 psychotropic drugs.

Antidepressants were the most commonly used agents (32.1%), followed by stimulants (20.2%) and neuroleptics (antipsychotics) (16.5%).

The most common drugs, per category, were:
- SSRIs: fluoxetine, sertraline and fluvoxamine;
- Stimulants: methylphenidate and dextroamphetamine;
- AAs: risperidone and olanzapine.
CONCLUSION

• Emotional and behavioral disorders are common in individuals with IDDs.
• Psychotropic medications are widely used in those with IDDs, despite limited research in this population.
• IDDs, especially the young and the elderly, are at higher risk for experiencing adverse effects from psychotropic medications.
• Whenever possible, non-pharmacologic interventions should be tried first.
• The best outcomes are expected when psychotropic medications are used to treat specific conditions. Aggression is a complex behavior and requires a comprehensive approach.
• Medications should be started at a low dose, and titrated slowly, aiming for the lowest effective dose.
• Polypharmacy should be avoided, if possible.

QUESTIONS?