

Medication Side Effects:

Staying Healthy While on Psychotropic Medications

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Objectives

- List common and rare side effects of commonly used mental health medications
- Recognize warning signs of potentially serious adverse effects of psychotropic medications
- Review ways to prevent and manage potentially dangerous medication side effects

What is a Side Effect?

- Side effect = adverse effect

side ef·fect

noun

noun: **side effect**; plural noun: **side effects**

- 1.** a secondary, typically undesirable effect of a drug or medical treatment.

Psychotropic Medication Classes

- Antipsychotics
- Mood Stabilizers
- Antidepressants

ANTIPSYCHOTICS

1st Generation (Typical) Antipsychotics

Generic	Brand
Haloperidol	Haldol
Chlorpromazine	Thorazine
Fluphenazine	Prolixin
Thiothixene	Navane
Trifluoperazine	Stelazine
Thioridazine	Mellaril
Perphenazine	Trilafon
Loxapine	Loxitane

1st Generation Antipsychotics

- Advantages
 - Effective for symptoms of psychosis
 - Inexpensive
- Disadvantages
 - Could worsen memory and concentration
 - Minimally effective for mood symptoms
 - Higher incidence of certain side effects (EPS, NMS, etc)

EPS: extrapyramidal symptoms

NMS: neuroleptic malignant syndrome

2nd Generation (Atypical) Antipsychotics

Generic	Brand
Clozapine	Clozaril, FazaClo
Olanzapine	Zyprexa (Zydis, Relvprevv)
Risperidone	Risperdal (Consta, M-tab)
Quetiapine	Seroquel, Seroquel XR
Ziprasidone	Geodon
Aripiprazole	Abilify, Abilify Maintena
Paliperidone	Invega, Invega Sustenna

2nd Generation Antipsychotics

Generic	Brand
Asenapine	Saphris
Iloperidone	Fanapt
Lurasidone	Latuda

2nd Generation Antipsychotics

- Advantage
 - Effective for symptoms of psychosis
 - Helpful for mood disorders
 - Lower rate of side effects compared to conventional (1st generation) antipsychotics
- Disadvantage
 - Higher risk of weight gain
 - Higher risk of diabetes
 - Expensive

Metabolic Syndrome

- All atypical antipsychotics have been shown to cause metabolic adverse effects to some degree including
 - Weight gain
 - Metabolic syndrome
 - Cardiovascular disease
 - Type 2 diabetes
- Each drug has a different degree of risk of causing these effects

Risk of Weight Gain with Second Generation Antipsychotics

Medication	Risk Level
Clozapine (Clozaril) Olanzapine (Zyprexa)	High
Iloperidone (Fanapt) Paliperidone (Invega) Quetiapine (Seroquel) Risperidone (Risperdal)	Medium
Aripiprazole (Abilify) Asenapine (Saphris) Lurasidone (Latuda) Ziprasidone (Geodon)	Low

Metabolic Monitoring with Second Generation Antipsychotics

	Baseline	1 month	2 months	3 months	Quarterly	Annually
Weight / BMI	X	X	X	X	X	
Waist Measurement	X	X	X	X	X	
Blood Pressure	X			X		X
Blood Sugar	X			X		X
Cholesterol/ lipids	X			X		X

BMI = Body Mass Index

Risk Factors for Metabolic Syndrome

- Children and adolescents
- People new to taking antipsychotic medications
- Does not seem to depend on the dose of medication – although for some, lowering the dose may be helpful
- Polypharmacy – use of more than one antipsychotic at a time

Managing Metabolic Side Effects

- Nutrition counseling
 - Healthy blood sugar: low carbohydrate, high protein, high in vegetables
 - Healthy cholesterol: low saturated fat
- Increasing physical activity
 - 30 minutes per day
 - At least 5 days per week
- Switching to a medication with less metabolic risk
- Occasionally adding a medication such as metformin may be helpful

Weight Loss IS Possible!

- Recent study published in New England Journal of Medicine
 - Weight loss program vs. nutrition and exercise information
 - Program - 37.8% lost $\geq 5\%$ of their body weight
 - Average weight loss was 7 pounds
 - Information - 22.7% lost significant weight
- 83% of study participants were on an atypical antipsychotic
 - Over 22% were on either clozapine or olanzapine

Symptoms of Diabetes and Diabetic Keto-acidosis (DKA)

- Rapid onset of
 - Excessive thirst
 - Excessive urination
 - Weight loss
 - Nausea and vomiting
 - Dry or flushed skin
 - Fruity odor on breath
- Can lead to
 - Dehydration
 - Rapid breathing
 - Confusion
 - Coma

Extrapyramidal Symptoms (EPS)

- Acute dystonia
 - Severe muscle spasm
- Akathisia
 - Inner restlessness
 - “Ants in the pants”
- Pseudoparkinsonism
 - Tremor, slowness, mask face, gait instability, cogwheel rigidity
- Tardive dyskinesia
 - Uncontrollable muscle movements
 - Mostly affecting oral-facial muscles

High Prolactin Levels

- All antipsychotics carry a risk of increasing a hormone called prolactin
 - Especially “typical” antipsychotics, risperidone (Risperdal) and paliperidone (Invega)
- Symptoms
 - Breast swelling and tenderness, lactation
 - Menstrual irregularities
 - Sexual dysfunction
- Potential complications
 - Infertility
 - Increased risk of osteoporosis?

Neuroleptic Malignant Syndrome (NMS)

- Occurs in < 1% of people taking antipsychotic medication
- Symptoms include:
 - Confusion
 - Fever and sweating
 - Extreme muscle stiffness
- Contact your healthcare provider immediately if you develop any of these symptoms

MOOD STABILIZERS

Mood Stabilizers

Generic	Brand
Lithium	Eskalith, Lithobid
Valproic acid	Depakote, Depakene
Carbamazepine	Tegretol, Equetro
Oxcarbazepine	Trileptal
Lamotrigine	Lamictal
Topiramate	Topamax

Lithium

- Common side effects
 - Tiredness, increased thirst and urination, stomach upset, dizziness, fine hand tremors
- Rare side effects
 - Diabetes insipidus – extreme increase in thirst and urination
 - Hypothyroidism (underactive thyroid) – fatigue, weight gain, dry skin, sensitivity to cold, thinning hair, memory problems, depression
 - Kidney problems

Valproic Acid (Depakote, Depakene)

- Common side effects
 - Nausea, diarrhea, weight gain, drowsiness, dizziness
- Rare side effects
 - Hair loss
 - Liver problems
 - Low platelets – increased risk of bruising and bleeding
 - Pancreatitis – severe stomach pain, nausea, vomiting, loss of appetite
 - Increased ammonia levels – confusion, difficulty thinking

Liver Toxicity

- Risk with valproic acid (Depakote) is highest in the first 6 months of taking the drug
- Liver enzymes should be checked periodically along with drug levels
- Symptoms of liver toxicity include
 - Yellowing of eyes and skin
 - Muscle weakness, feeling tired and uneasy
 - Stomach pain, vomiting, appetite loss

Carbamazepine (Tegretol)

- Common side effects
 - Upset stomach, dry mouth, constipation, dizziness, drowsiness, mild rash
- Rare side effects
 - Decreased sodium levels – nausea, drowsiness, confusion
 - Stevens-Johnson Syndrome
 - Lower blood cell counts – fever, sore throat, infections, easy bruising

Stevens-Johnson Syndrome

- Severe, potentially deadly rash
- Can occur rarely with carbamazepine, oxcarbazepine, lamotrigine and other drugs
 - Carbamazepine - Asian/South Asian persons at higher risk
- Typically presents within first few months of starting medication
- Often begins with flu-like symptoms
- Painful red, purplish rash that spreads quickly

ANTIDEPRESSANTS

Antidepressants – Selective Serotonin Reuptake Inhibitors (SSRIs)

Generic	Brand
Fluoxetine	Prozac
Paroxetine	Paxil
Sertraline	Zoloft
Citalopram	Celexa
Escitalopram	Lexapro
Fluvoxamine	Luvox

SSRIs

- Common side effects
 - Headache, nausea, diarrhea, increased sweating, dry mouth, restlessness, drowsiness, insomnia
 - Sexual dysfunction
- Rare side effects
 - Serotonin syndrome – fever, sweating, muscle tics, shivering, diarrhea, confusion
 - Increased bleeding risk
 - Low sodium levels – headache, weakness, difficulty concentrating, memory problems
 - Teeth grinding
 - Abnormal heart rhythm – palpitations, dizziness, shortness of breath, fainting

Medication Information

The screenshot shows the NAMI website interface. At the top left is the NAMI logo (National Alliance on Mental Illness). To the right of the logo are navigation links: About NAMI, Contact Us, NAMI Members, NAMI Leaders, en Español, and Information Helpline: (800) 950-NAMI. Below these are two prominent buttons: "JOIN NAMI" and "DONATE". A horizontal navigation bar contains links for Mental Illnesses, Treatment, Support & Programs, NAMI Advocacy, Find Your Local NAMI, NAMIWalks, and a search bar with a "GO" button. On the left side, there is a vertical menu with links for Research, Advocacy, Publications, Events, Convention, Discussion Groups, Newsroom, STAR Center, and NAMI Store. Below the menu are login fields for "username:" and "password:" with "REGISTER" and "SIGN IN" buttons. The main content area shows a breadcrumb trail: Home → Inform Yourself → About Medication. To the right of the breadcrumb are social sharing icons for Facebook, Twitter, and LinkedIn, along with links for "SHARE", "PRINT", "E-MAIL", and "SAVE". The main heading is "Medications" with a star rating of four stars. Below this, the medication "Latuda® (lurasidone)" is listed. Underneath, it says "Latuda®" and lists "Tablets: 40 mg, 80 mg". The "Generic name: lurasidone (loo RAS i done)" is provided. The "Medication class: Second generation antipsychotic (SGA), atypical antipsychotic" is also shown. At the bottom, there is a small disclaimer: "All FDA black box warnings are at the end of this fact sheet. Please review before taking this medication."

NAMI.org → Treatment → Medications

Other Resources

- Mayo Clinic – mayoclinic.com
- FDA -
<http://www.fda.gov/Drugs/ResourcesForYou/Consumers/default.htm>
- MedlinePlus -
<http://www.nlm.nih.gov/medlineplus/druginformation.html>