

# Metabolic and Cardiovascular Health Issues

Individual psychiatric medications, including those in the antidepressant, mood stabilizer and antipsychotic classes, have been shown to have differential effects on weight gain. Although the evidence is limited, case studies have also reported issues with specific antipsychotic and antidepressant medications and Q-T interval prolongation, particularly in overdose situations.

Therefore, obtaining a baseline ECG before prescribing psychiatric medications may be prudent.

The guidelines below review specific medication effects on weight gain, Q-T prolongation and hyperprolactinemia as well as the management of glycemic, blood pressure and lipid control.

## Weight Gain

Weight Gain Associated with Psychiatric Agents Used in Treatment of Severe Mental Illnesses <sup>1,2</sup>			
Drug Class	Weight Loss	Weight Neutral	Weight Gain
Antidepressants	Fluoxetine (Prozac) Bupropion (Wellbutrin)	Citalopram (Celexa) Escitalopram (Lexapro) Sertraline (Zoloft) Nefazodone (Serzone) Venlafaxine (Effexor) Duloxetine (Cymbalta)	<b>Substantial weight gain:</b> Imipramine (Tofranil) Amitriptyline (Elavil) Mirtazapine (Remeron) <b>Intermediate weight gain:</b> Nortriptyline (Pamelor) Paroxetine (Paxil)
Anticonvulsants/ Mood Stabilizers	Topiramate (Topamax) Zonisamide (Zonegran)	Lamotrigine (Lamictal) Oxcarbazepine (Trileptal)	<b>Substantial weight gain:</b> Lithium (Eskalith, Lithobid) Valproic acid (Valproate, Valpro, Depakene) <b>Intermediate weight gain:</b> Carbamazepine (Tegretol) Gabapentin (Neurotin)
Antipsychotics		Aripiprazole (Abilify) Asenapine (Saphris) Fluphenazine (Prolixin) Haloperidol (Haldol) Lurasidone (Latuda) Perphenazine (Trilafon) Ziprasidone (Geodon)	<b>Substantial weight gain:</b> Chlorpromazine (Thorazine) Clozapine (Clozaril) Olanzapine (Zyprexa) <b>Intermediate weight gain:</b> Thioridazine (Mellaril) Iloperidone (Fanapt) Quetiapine (Seroquel) Risperidone (Risperdal)

Quality care is a team effort.  
Thank you for playing a starring role!



## Metabolic Syndrome

According to the American Heart Association and the National Heart, Lung, and Blood Institute, there are five factors that make up metabolic syndrome: large waist size (40 inches or larger for men, 35 inches or larger for women); high triglycerides (either 150 mg/dL† or higher or using a cholesterol medication); low good cholesterol, otherwise called high-density lipoprotein, or HDL (HDL less than 40 mg/dL for men, less than 50 mg/dL for women; or any patient using a cholesterol medication); high blood pressure (blood pressure of 135/85 mmHg or greater or using a blood pressure medication); and high fasting glucose level (100 mg/dL or higher).

The following reviews antipsychotic medication effects on development of metabolic syndrome and provides recommended guidelines for management of these risk factors when they are present.

Relative Likelihood of Metabolic Syndrome (MetS) with Antipsychotic Medications <sup>1,2,3,4</sup>			
Cardiovascular Diseases	Risk		
	Low	Mild	Moderate/High
<b>Typical Antipsychotics</b>			
Haloperidol (Haldol)	✓	—	—
Perphenazine (Trilafon)	✓	—	—
Chlorpromazine (Thorazine)*	—	—	—/✓
<b>Atypical Antipsychotics</b>			
Aripiprazole (Abilify)	✓	—	—/—
Asenapine (Saphris)*	✓	—	—/—
Lurasidone (Latuda)*	✓	—	—/—
Ziprasidone (Geodon)	✓	—	—/—
Iloperidone (Fanapt)*	—	✓	—/—
Risperidone (Risperdal)	—	✓	—/—
Sertindole (Serolect, Serlect)	—	✓	—/—
Quetiapine (Seroquel)	—	—	✓/—
Clozapine (Clozaril)	—	—	—/✓
Olanzapine (Zyprexa)	—	—	—/✓

*This tool is provided as a resource and is not a substitute for the professional medical judgment of treating physicians or other health care practitioners. This guideline reflects the current state of knowledge at the time of development on effect and appropriate care. Proper use, adaptation, modifications or decisions to disregard this summary in whole or in part are entirely the responsibility of the clinician who uses this guideline.*

† Abbreviations: mg/dL = milligrams per deciliter; mmHg = millimeters of mercury

\* Limited data with these medications

### References

<sup>1</sup> Adapted from Hert, M. D., Cohen, D., Bobes, J., Cetkovich-Bakmas, M., Leucht, S., Ndeti, D., Newcomer, J., Uwakwe, R., Asai, I., Moller, H., Gautam, S., Detraux, J., & Correll, C. (2011). Physical illness in patients with severe mental disorders, II. Barriers to care, monitoring, and treatment guidelines, plus recommendations at the system and individual level. *World Psychiatry, 10*(1), 138-151.

<sup>2</sup> Adapted from A Summary for Monitoring Physical Health and Side-Effects of Psychiatric Medications in the Severely Mentally Ill Population (2014). The University of South Florida, Florida Medicaid Drug Therapy Management Program for Behavioral Health sponsored by the Florida Agency for Health Care Administration.

<sup>3</sup> National Heart, Lung, and Blood Institute (2011). How is metabolic syndrome diagnosed? Retrieved from <http://www.nhlbi.nih.gov/health/health-topics/topics/ms/diagnosis.html>

<sup>4</sup> American Heart Association (2011). Symptoms and diagnosis of metabolic syndrome. Retrieved from [http://www.heart.org/HEARTORG/Conditions/More/MetabolicSyndrome/Symptoms-and-Diagnosis-of-Metabolic-Syndrome\\_UCM\\_301925\\_Article.jsp](http://www.heart.org/HEARTORG/Conditions/More/MetabolicSyndrome/Symptoms-and-Diagnosis-of-Metabolic-Syndrome_UCM_301925_Article.jsp)

## ADA versus ACC, AHA and NHLBI Recommendations for Glycemic, Blood Pressure and Lipid Control<sup>†</sup>

American Diabetic Association (ADA) Recommendations for Glycemic, Blood Pressure, and Lipid Control <sup>1, 2, 3</sup>	American College of Cardiology (ACC), American Heart Association (AHA) and National Heart, Lung, and Blood Institute (NHLBI) Recommendations for Lipid Control <sup>1, 4</sup>
<ul style="list-style-type: none"> <li>• Blood Pressure: Systolic &lt;140 mmHg*; Diastolic &lt;80mmHg</li> <li>• Lipids: LDL-C &lt;100 mg/dL<sup>‡</sup> <ul style="list-style-type: none"> <li>- Statin therapy recommended for patients with MI history or age greater than 40 years with other risk factors</li> </ul> </li> <li>• Hemoglobin A1c: &lt;7.0%<sup>b</sup></li> </ul>	<ul style="list-style-type: none"> <li>• No specific LDL and non-HDL targets</li> <li>• Four major primary- and secondary- prevention groups:               <ul style="list-style-type: none"> <li>- Individuals with clinical atherosclerotic cardiovascular disease.</li> <li>- Individuals with LDL-cholesterol levels <math>\geq</math> 190 mg/dL, such as those with familial hypercholesterolemia.</li> <li>- Individuals with diabetes aged 40 to 75 years old with LDL-cholesterol levels between 70 and 189 mg/dL and without evidence of atherosclerotic cardiovascular disease.</li> <li>- Individuals without evidence of cardiovascular disease or diabetes, but who have LDL-cholesterol levels between 70 and 189 mg/dL and a 10-year risk of atherosclerotic cardiovascular disease <math>\geq</math> 7.5%.</li> </ul> </li> </ul>

<sup>†</sup> Abbreviations: mmHg = millimeters of mercury; mg/dL = milligrams per deciliter; LDL-C = low density lipoprotein

\* Lower systolic blood pressure (SBP) goals may be appropriate based on individual patient characteristics and therapeutic response

<sup>‡</sup> A lower LDL-C goal of <70 mg/dL using a high dose of a statin may be appropriate in persons with overt cardiovascular disease (CVD). See the following table for further recommendations regarding lipid screening and management

<sup>a</sup> Be cautious of contraindications to statin therapy (e.g., pregnancy) and multi-drug interactions with psychiatric medications

<sup>b</sup> More or less stringent glycemic goals may be appropriate for individual patients. Individualize goals based on diabetes duration, age/life expectancy, comorbidities, known CVD or advanced microvascular complications, hypoglycemia unawareness, and individual patient characteristics

### References

<sup>1</sup> Adapted from A Summary for Monitoring Physical Health and Side-Effects of Psychiatric Medications in the Severely Mentally Ill Population (2014). The University of South Florida, Florida Medicaid Drug Therapy Management Program for Behavioral Health sponsored by the Florida Agency for Health Care Administration.

<sup>2</sup> Adapted from American Diabetes Association (2013). Standards of medical care in diabetes-2013. Diabetes Care, 36(suppl 1), S11-S66.

<sup>3</sup> Ajmal, A., Joffe, H., & Nachtgall, L. B. (2014). Psychotropic-induced hyperprolactinemia: A clinical review. Psychosomatics, 55(1), 29-36.

<sup>4</sup> Adopted from Stone, N. J., Robinson, J.G., Lichtenstein, A. H., Bairey, M., Blum, C. B., Eckel, R. H., Goldberg, A. C., Gordon, D., Levy, D., Lloyd-Jones, D. M., McBride, P., Schwartz, J. S., Shero, S. T., Smith, S. C., Watson, K., Wilson, P. W. Eddleman, K. M., Jarrett, N. M., LaBresh, K., Nevo, L., Wnek, J., Anderson, J. L., Halperin, J. L., Albert, N. M., Bozkurt, B., Brindis, R. G., Curtis, L. H., DeMets, D., Hochman, J. S., Kovacs, R. J., Ohman, E. M., Pressler, S. J., Selke, F. W., Shen, W. K., Smith, S. C., Tomaseli, G. F., American College of Cardiology/American Heart Association Task Force on Practice Guidelines (2014). Circulation, 129(25 suppl 2), 246-48.