

22 Psychiatric Medications for Monitoring in Primary Care

Medication	Warnings, Precautions, and Adverse Events	Comments
Class: SSRI		
<p>Fluvoxamine</p> <p><i>Indications:</i> Adult: OCD Child/Adolescent: OCD (10-17 years)</p> <p><i>Uses:</i> Anxiety, OCD</p> <p><i>Monitoring:</i> Same as other SSRIs</p>	<p><i>Boxed Warnings:</i> Suicidality <i>Warnings and Precautions:</i> Similar to other SSRIs <i>Adverse Events:</i> Similar to other SSRIs</p>	<p>Used much less than SSRIs in the group of eight medications for prescribing, probably because it has no FDA indication for MDD or any anxiety disorder. Still somewhat popular as a medication for OCD.</p>
<p>Citalopram</p> <p><i>Indications:</i> Adult: MDD Child/Adolescent: None</p> <p><i>Uses:</i> Anxiety, MDD, OCD</p> <p><i>Monitoring:</i> Same as other SSRIs</p>	<p><i>Boxed Warning:</i> Suicidality. <i>Warnings and Precautions:</i> Similar to other SSRIs <i>Adverse Events:</i> Similar to other SSRIs</p>	<p>Escitalopram, one of the SSRIs in the group of medications for prescribing, is an active metabolite of citalopram. Escitalopram reportedly has fewer AEs and less interaction with hepatic metabolic enzymes than citalopram but is otherwise essentially identical. Citalopram offers no advantage other than price, as escitalopram is branded until 2012.</p>
<p>Paroxetine</p> <p><i>Indications:</i> Adult: MDD, OCD, Panic Disorder, Generalized Anxiety Disorder, Social Anxiety Disorder, Posttraumatic Stress Disorder Child/Adolescent: None</p> <p><i>Uses:</i> Anxiety, MDD, OCD</p> <p><i>Monitoring:</i> Same as other SSRIs</p>	<p><i>Boxed Warnings:</i> Suicidality. <i>Warnings and Precautions:</i> Similar to other SSRIs <i>Adverse Events:</i> Similar to other SSRIs</p>	<p>Paroxetine used much less than the SSRIs for prescribing, probably because of its nonlinear kinetics. A study of children and adolescents showed doubling the dose of paroxetine from 10 mg/day to 20 mg/day resulted in a 7-fold increase in blood levels (Findling et al, 1999). Thus, once metabolic enzymes are saturated, paroxetine levels can increase dramatically with dose increases and decrease dramatically with dose decreases, sometimes leading to adverse events.</p>

Compiled by Mark A. Riddle, MD, and Susan dosReis, PhD, Center for Mental Health Services in Pediatric Primary Care, Johns Hopkins School of Public Health. Updated July 2011.

Medication	Warnings, Precautions, and Adverse Events	Comments
<p>Class: SNRI</p> <p>Venlafaxine</p> <p><i>Indications:</i> Adult: MDD Child/Adolescent: None</p> <p><i>Uses:</i> Anxiety, MDD</p> <p><i>Monitoring:</i> BP, HR, Ht, Wt, suicidality</p>	<p><i>Boxed Warnings:</i> Suicidality</p> <p><i>Warnings and Precautions:</i> Serotonin syndrome, sustained hypertension, mydriasis, discontinuation symptoms — especially anxiety and insomnia, decreased appetite and weight, height deceleration, activation of mania/hypomania, hyponatremia, seizures, increased risk of bleeding events, serum cholestorol elevation, interstitial lung disease and eosinophilic pneumonia</p> <p><i>Adverse Events:</i> Asthenia, sweating, nausea, constipation, anorexia, vomiting, somnolence, dry mouth, dizziness, nervousness, anxiety, tremor, blurred vision, abnormal ejaculation/orgasm and impotence in men</p>	<p>Venlafaxine was compared to a second SSRI in children and adolescents with depression who had not responded to initial treatment with an SSRI (TORDIA study; Brent et al, 2008). The second SSRI and venlafaxine showed comparable efficacy, however, venlafaxine was associated with more adverse events and discontinuations.</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: TRICYCLIC ANTIDEPRESSANTS		
<p>Nortriptyline</p> <p><i>Indications:</i> Adult: MDD Child/Adolescent: None</p> <p><i>Uses:</i> Anxiety, MDD</p> <p><i>Monitoring:</i> BP, HR, Ht, Wt, suicidality</p>	<p><i>Boxed Warnings:</i> Suicidality</p> <p><i>Warnings and Precautions:</i> Serotonin syndrome, sustained hypertension, mydriasis, discontinuation symptoms — especially anxiety and insomnia, decreased appetite and weight, height deceleration activation of mania/hypomania, hyponatremia, seizures, increased risk of bleeding events, serum cholestorol elevation, interstitial lung disease and eosinophilic pneumonia</p> <p><i>Adverse Events:</i> Asthenia, sweating, nausea, constipation, anorexia, vomiting, somnolence, dry mouth, dizziness, nervousness, anxiety, tremor, blurred vision, abnormal ejaculation/orgasm and impotence in men</p>	<p>Venlafaxine was compared to a second SSRI in children and adolescents with depression who had not responded to initial treatment with an SSRI (TORDIA study; Brent et al, 2008). The second SSRI and venlafaxine showed comparable efficacy, however, venlafaxine was associated with more adverse events and discontinuations.</p>
<p>Clomipramine</p> <p><i>Indications:</i> Adult: OCD Child/Adolescent: OCD (8-17 years)</p> <p><i>Uses:</i> Refractory OCD</p> <p><i>Monitoring:</i> Orthostatic BP, HR, blood levels, EKGs to rule out prolonged QTc, suicidality</p>	<p><i>Boxed Warnings:</i> Suicidality</p> <p><i>Warnings and Precautions:</i> Seizures, orthostatic decreases in BP and increases in HR, psychosis, confusion, mania or hypomania, hepatic enzyme increases, hematologic changes, hyperthermia, sexual dysfunction, weight gain, withdrawal symptoms with abrupt discontinuation</p> <p><i>Adverse Events:</i> Gastrointestinal, including dry mouth, constipation, nausea, dyspepsia, and anorexia; nervous system complaints, including somnolence, tremor, dizziness, nervousness, and myoclonus; genitourinary complaints, including changed libido, ejaculatory failure, impotence, and micturition disorder; and other miscellaneous complaints, including fatigue, sweating, increased appetite, weight gain, and visual changes</p>	<p>The most selectively serotonergic of the TCAs, clomipramine is used for refractory OCD.</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: OTHER ANTIDEPRESSANTS		
<p>Bupropion</p> <p><i>Indications:</i> Adult: MDD Child/Adolescent: None</p> <p><i>Uses:</i> Depression, ADHD</p> <p><i>Monitoring:</i> BP, HR, HT, WT, suicidality</p>	<p><i>Boxed Warnings:</i> Suicidality</p> <p><i>Warnings and Precautions:</i> Seizures, hepatotoxicity, agitation and insomnia, psychosis and confusion, weight gain or loss, allergic reactions, hypertension</p> <p><i>Adverse Events:</i> Agitation, dry mouth, insomnia, headache/migraine, nausea/vomiting, constipation, and tremor</p>	<p>Because of its structural similarity to stimulants, bupropion is sometimes used to treat both depression and symptoms of ADHD.</p>
<p>Mirtazapine</p> <p><i>Indications:</i> Adult: MDD Child/Adolescent: None</p> <p><i>Uses:</i> Depression</p> <p><i>Monitoring:</i> Ht, Wt, suicidality</p>	<p><i>Adverse Events:</i> Somnolence, increased appetite, weight gain, dizziness</p>	<p>Mirtazapine is a tetra-cyclic atypical antidepressant. It is associated with more somnolence, appetite increase and weight gain than other antidepressants.</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: ANXIOLYTICS		
<p>Bupirone (azaspirone anxiolytic)</p> <p><i>Indications:</i> Adult: Anxiety Child/Adolescent: None</p> <p><i>Uses:</i> Anxiety</p> <p><i>Monitoring:</i> None beyond general health</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings:</i> Co-administration with an MAOI can cause elevated blood pressure</p> <p><i>Precautions:</i> Interference with cognitive and motor performance, potential for withdrawal reactions in sedative/hypnotic/anxiolytic drug-dependent patients, possible concerns (e.g., a syndrome of restlessness) shortly after initiation of treatment</p>	<p>Bupirone is one of the safest and easiest to monitor of psychiatric medications used to treat children and adolescents. However, two large, multisite 6-week RCTs found no significant differences between bupirone and placebo with regard to the symptoms of generalized anxiety disorder (GAD) following doses recommended for the treatment of GAD in adults.</p>
<p>Lorazepam (benzodiazepine)</p> <p><i>Indications:</i> Adult: Acute anxiety Child/Adolescent: None</p> <p><i>Uses:</i> Acute anxiety</p> <p><i>Monitoring:</i> Pregnancy testing</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings:</i> Worsening or emergence of depression, suicidality, respiratory depression, interference with cognitive and motor performance, physical and psychological dependence, risk of use in pregnancy, withdrawal symptoms</p> <p><i>Precautions:</i> Paradoxical reactions (i.e., behavioral disinhibition), should not be used with alcohol.</p> <p><i>Adverse Events:</i> In a sample of about 3500 adult patients treated for anxiety, the most frequent adverse reaction was sedation (15.9%), followed by dizziness (6.9%), weakness (4.2%), and unsteadiness (3.4%)</p>	<p>Primarily because of the possibility of physical and psychological dependence with prolonged use of benzodiazepines, lorazepam is generally recommended only for short-term use (days to a few weeks) for treatment of acute and severe anxiety following a trauma or preceding a medical procedure.</p>
<p>Clonazepam (benzodiazepine)</p> <p><i>Indications:</i> Adult: Panic disorder Child/Adolescent: None</p> <p><i>Uses:</i> Acute anxiety</p> <p><i>Monitoring:</i> Pregnancy testing</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings:</i> Interference with cognitive and motor performance, suicidality, physical and psychological dependence, risk of use in pregnancy, withdrawal symptoms.</p> <p><i>Precautions:</i> Worsening of seizures, hypersalivation, should not be used with alcohol</p> <p><i>Adverse Events:</i> Somnolence, coordination abnormal, ataxia, depression</p>	<p>Clonazepam is similar to lorazepam, except for its shorter half-life and once daily dosing.</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: SECOND GENERATION ANTIPSYCHOTICS		
<p>Risperidone</p> <p><i>Indications:</i> Adult: Schizophrenia, acute manic or mixed episodes associated with bipolar I disorder Child/Adolescent: Schizophrenia (13-17 years), acute manic or mixed episodes (10-17 years), “irritability” associated with autistic disorder (5-16 years)</p> <p><i>Uses:</i> Schizophrenia spectrum disorders, bipolar spectrum disorders, “irritability” in autism</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, abnormal involuntary movements</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings and Precautions:</i> Neuroleptic malignant syndrome, tardive dyskinesia, hyperglycemia and diabetes mellitus, hyperprolactinemia, orthostatic hypotension, leucopenia, neutropenia and agranulocytosis, potential for cognitive and motor impairment, seizures, dysphagia, priapism, TTP, disruption of body temperature regulation, antiemetic effect, suicidality</p> <p><i>Adverse Events:</i> Most common adverse reactions in clinical trials ($\geq 10\%$): somnolence, increased appetite, fatigue, insomnia, sedation, parkinsonism, akathisia, vomiting, cough, constipation, nasopharyngitis, drooling, rhinorrhea, dry mouth, abdominal pain upper, dizziness, nausea, anxiety, headache, nasal congestion, rhinitis, tremor, rash</p>	<p>Risperidone was the first second generation antipsychotic (SGA) approved by the FDA (in 1993) for marketing in the United States. It, along with the other SGAs, is most commonly used to treat bipolar spectrum disorders. It is generally effective and safe for short-term use, but there are concerns about adverse effects of long-term use, such as obesity, diabetes, metabolic syndrome and tardive dyskinesia.</p>
<p>Quetiapine</p> <p><i>Indications:</i> Adult: Schizophrenia, manic episodes associated with bipolar I or II disorder Child/Adolescent: Schizophrenia (13-17 years), manic episodes associated with bipolar I disorder (10-17)</p> <p><i>Uses:</i> Schizophrenia & bipolar spectrum disorders</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, abnormal involuntary movements</p>	<p><i>Boxed Warnings:</i> Suicidality with antidepressant drugs</p> <p><i>Warnings and Precautions:</i> Neuroleptic malignant syndrome, hyperglycemia and diabetes mellitus, hyperlipidemia, weight gain, tardive dyskinesia, orthostatic hypotension, increased blood pressure, leucopenia, neutropenia and agranulocytosis, cataracts</p> <p><i>Adverse Events:</i> Most common adverse events in clinical trials in children and adolescents (incidence $\geq 5\%$ and twice placebo): somnolence, dizziness, fatigue, increased appetite, nausea, vomiting, dry mouth, tachycardia, weight increased</p>	<p>Marketed since 1997, quetiapine is associated with more somnolence than other SGAs.</p>
<p>Aripiprazole</p> <p><i>Indications:</i> Adult: Schizophrenia, acute treatment-manic or mixed episodes of bipolar I disorder, maintenance treatment-bipolar I disorder, adjunct treatment-MDD Child/Adolescent: Schizophrenia (13-17 yrs), manic or mixed episodes (10-17 yrs), “irritability” associated with autistic</p>	<p><i>Boxed Warnings:</i> Suicidality with antidepressant drugs</p> <p><i>Warnings and Precautions:</i> Neuroleptic malignant syndrome, tardive dyskinesia, hyperglycemia and diabetes mellitus, orthostatic hypotension, leucopenia, neutropenia and agranulocytosis, seizures/convulsions, potential for cognitive and</p>	<p>Marketed since 2002, aripiprazole has a somewhat different mechanism of action than other SGAs. It is associated with less weight gain than other SGAs except ziprasidone.</p>

<p>disorder (6-17 yrs)</p> <p><i>Uses:</i> Schizophrenia & bipolar spectrum disorders, “irritability” in autism</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, abnormal involuntary movements</p>	<p>motor impairment</p> <p><i>Adverse Events:</i> Most common adverse reactions in clinical trials in children and adolescents (incidence $\geq 5\%$ and twice placebo): somnolence, extrapyramidal disorder, fatigue, nausea, akathisia, blurred vision, salivary hypersecretion, dizziness, tremor, sedation, fatigue, drooling</p>	
<p>Ziprasidone</p> <p><i>Indications:</i> Adult: Schizophrenia, manic or mixed episodes associated with bipolar I disorder, adjunctive maintenance therapy of bipolar I disorder, agitation in schizophrenic patients (intramuscular injection) Child/Adolescent: None</p> <p><i>Uses:</i> Schizophrenia and bipolar spectrum disorders</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, abnormal involuntary movements, QTc on ECG</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings and Precautions:</i> QT interval prolongation, neuroleptic malignant syndrome, tardive dyskinesia, hyperglycemia and diabetes mellitus, rash, orthostatic hypotension, leucopenia, neutropenia and agranulocytosis, seizures, potential for cognitive and motor impairment</p> <p><i>Adverse Events:</i> Most common adverse reactions in clinical trials (incidence $\geq 5\%$ and twice placebo): Somnolence, extrapyramidal symptoms, dizziness, akathisia, abnormal vision, asthenia, vomiting</p>	<p>Marketed since 2001, ziprasidone is associated with less weight gain than other SGAs. Because of its potential to prolong the QT interval, ECG monitoring is needed.</p>
<p>Olanzapine</p> <p><i>Indications:</i> Adult: Schizophrenia, acute treatment of manic or mixed episodes associated in bipolar I disorder Child/Adolescent: Schizophrenia (13-17 years), manic or mixed episodes of bipolar I disorder (13-17 years)</p> <p><i>Uses:</i> Schizophrenia & bipolar spectrum disorders</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, abnormal involuntary movements</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings and Precautions:</i> Suicide, neuroleptic malignant syndrome, hyperglycemia, hyperlipidemia, weight gain, tardive dyskinesia, orthostatic hypotension, leucopenia, neutropenia and agranulocytosis, seizures, potential for cognitive and motor impairment, hyperprolactinemia.</p> <p><i>Adverse Events:</i> Most common adverse reactions in clinical trials of adolescents ($\geq 5\%$ and at least twice that for placebo): sedation, weight increased, headache, increased appetite, dizziness, abdominal pain, pain in extremity, fatigue, dry mouth.</p>	<p>Marketed since 1996, olanzapine is associated with more weight gain and related metabolic side effects in adolescents than other SGAs (Sikich et al 2008; Correll et al 2009).</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: FIRST GENERATION ANTIPSYCHOTICS		
<p>Perphenazine</p> <p><i>Indications:</i> Adult: Schizophrenia Child/Adolescent: None</p> <p><i>Uses:</i> Schizophrenia spectrum disorders, bipolar spectrum disorders</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, cholesterol (total/LDL/HDL), triglycerides, liver enzymes, abnormal involuntary movements</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings and Precautions:</i> Tardive dyskinesia, neuroleptic malignant syndrome, leucopenia, neutropenia, agranulocytosis, hyperprolactinemia, potential for cognitive/motor impairment, impaired liver function</p> <p><i>Adverse Events:</i> Acute dystonic reaction, extrapyramidal symptoms, withdrawal-emergent dyskinesia, akathisia, somnolence, drowsiness, autonomic effects (e.g., dry mouth, GI upset, blurry vision)</p>	<p>Perphenazine, a “mid-potency” antipsychotic, was shown to have comparable effectiveness as the SGAs in a large study of adults with schizophrenia (the “CATIE” study; Lieberman et al. 2005). In the CATIE study, perphenazine was associated with less weight gain and metabolic side effects than the SGAs.</p>
<p>Haloperidol</p> <p><i>Indications:</i> Adult: Schizophrenia, control of tics in Tourette’s Disorder Child/Adolescent: None</p> <p><i>Uses:</i> Schizophrenia spectrum disorders, bipolar spectrum disorders, tics</p> <p><i>Monitoring:</i> HT/WT, glucose, HbA1c, total, LDL, HDL cholesterol, triglycerides, liver enzymes, abnormal involuntary movements, QTc on ECG</p>	<p><i>Boxed Warnings:</i> None</p> <p><i>Warnings and Precautions:</i> QT interval prolongation, tardive dyskinesia, neuroleptic malignant syndrome, leucopenia, neutropenia and agranulocytosis, hyperprolactinemia, seizures, potential for cognitive and motor impairment, impaired liver function</p> <p><i>Adverse Events:</i> Acute dystonic reaction, extrapyramidal symptoms, withdrawal emergent dyskinesia, akathisia, somnolence, drowsiness, various autonomic effects (e.g., dry mouth, GI upset, blurry vision)</p>	<p>Haloperidol, a “high potency” antipsychotic, has been marketed in the US for over 50 years; it was the most commonly prescribed antipsychotic in children and adolescents prior to the introduction of the SGAs in the 1990s. It is associated with more neurologic adverse events, but less weight gain and metabolic adverse events than the SGAs.</p>

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Medication	Warnings, Precautions, and Adverse Events	Comments
Class: MOOD STABILIZERS		
<p>Lithium (Element of the alkali-metal group)</p> <p><i>Indications:</i> Adult: Manic episodes of bipolar disorder, maintenance treatment for BPAD Child/Adolescent: Appears to have “grandfathered” indication for mania for ages ≥ 12</p> <p><i>Uses:</i> Acute mania in bipolar disorder, also maintenance therapy</p> <p><i>Monitoring:</i> Pregnancy testing, serum levels, ECG, CBC, thyroid functions, renal function</p>	<p><i>Boxed Warnings:</i> Toxicity closely related to serum levels; can occur close to therapeutic dose levels</p> <p><i>Warnings:</i> Very high risk of toxicity: significant cardiovascular or renal disease, severe debilitation, dehydration, sodium depletion, taking diuretics or angiotensin converting enzyme (ACE) inhibitors. Chronic use may lower renal concentrating ability, can present as nephrogenic diabetes insipidus, with polyuria/polydipsia. Encephalopathic syndrome (i.e., weakness, lethargy, fever, tremulousness and confusion, leukocytosis, extrapyramidal symptoms, elevated serum enzymes, BUN and FBS) may occur with lithium and a neuroleptic, often haloperidol.</p> <p><i>Precautions:</i> Hypothyroidism, impaired mental or physical abilities, any concomitant medications, i.e., diuretics, ACE inhibitors, carbamazepine, fluoxetine</p> <p><i>Adverse Events:</i> Mild < 1.5 mEq/L; Mild/moderate 1.5-2.5 mEq/L; Moderate/severe ≥ 2.0 mEq/L. < 2.0 mEq/L: early signs of toxicity-diarrhea, vomiting, drowsiness, muscular weakness and lack of coordination; At higher levels: giddiness, ataxia, blurred vision, tinnitus, large output of dilute urine; At > 3.0 mEq/L: complex clinically with multiple organs and organ systems</p>	<p>Introduced in the US in the early 1960s, it was the original mood stabilizer. It has clear, documented evidence of effectiveness for acute and maintenance treatment for mania and bipolar disorder in adults. There has been no well-powered study for mania in children and adolescents, in large part because of the ethical and practical difficulties with doing placebo-controlled studies. Evidence is mixed from several smaller studies (Geller et al 1998, Kafantaris et al 2004, Kowatch et al 2007). Its indication for 12-17 year olds is not based on rigorous safety and efficacy data. Unpopular with children and adolescents because of common side effects and the need for repeated venipunctures for serum level monitoring.</p>
<p>Valproic Acid (anticonvulsant)</p> <p><i>Indications:</i> Adult: Acute treatment of manic episodes associated with bipolar disorder, therapy of complex partial seizures and simple and complex absence seizures, prophylaxis of migraine headaches Child/Adolescent: None for psychiatric disorders</p> <p><i>Uses:</i> Mood stabilizer</p> <p><i>Monitoring:</i> Pregnancy testing, serum levels, CBC, liver function tests</p>	<p><i>Boxed Warnings:</i> Hepatotoxicity — can be fatal, usually in first 6 months of use in children < 2 years. Teratogenic, includes neural tube defects, e.g., spina bifida. Pancreatitis — can be fatal, hemorrhagic cases</p> <p><i>Warnings and Precautions:</i> Suicidality, thrombocytopenia, multiorgan hypersensitivity reaction, hypothermia, hyperammonemia, CNS “depression” when used with sedating drugs. Hepatic enzyme induction can affect many other drug levels</p> <p><i>Adverse Events:</i> Most common adverse reactions in clinical trials of mania (incidence $\geq 5\%$ & $> 5\%$ above placebo): Nausea, vomiting, somnolence, dizziness</p>	<p>Valproic acid to treat mania in adults is supported by substantial data. A yet unpublished, 24-week RCT had response rates of divalproex = 54%, lithium = 42% and placebo = 29% (Kowatch et al 2007). A recent, industry-funded, multisite RCT in youth with mania and bipolar disorder did not show efficacy of valproic acid versus placebo (Wagner et al 2009). The usefulness of valproic acid in child psychiatric disorders is debatable given that the only published RCT of valproate for mania in youth found no effect.</p>

<p>Carbamazepine/Oxycarbamazepine (anticonvulsant)</p> <p><i>Indications:</i> Adult: None for psychiatric disorders Child/Adolescent: None for psychiatric disorders</p> <p><i>Uses:</i> Mood dysregulation</p> <p><i>Monitoring:</i> CBC with platelets, serum levels, Chinese ancestry-test for HLA-B*1502 before starting treatment</p>	<p><i>Boxed Warnings:</i> Serious, potentially fatal dermatologic reactions (toxic epidermal necrolysis and Stevens-Johnson Syndrome), aplastic anemia, agranulocytosis</p> <p><i>Warnings and Precautions:</i> Suicidality. Can affect plasma levels of concomitant agents</p> <p><i>Adverse Events:</i> The most frequently observed adverse reactions, particularly during the initial phases of therapy, are dizziness, drowsiness, unsteadiness, nausea, and vomiting</p>	<p>Carbamazepine was introduced in the US in 1968 for treatment of seizures but has well-documented efficacy for treating mania in bipolar disorder in adults. There have been no RCTs in children and adolescents with bipolar disorder. The medication can be difficult to manage because of its numerous drug interactions mediated by hepatic P450 enzymes.</p>
<p>Lamotrigine (anticonvulsant)</p> <p><i>Indications:</i> Adult: Maintenance treatment of bipolar disorder, including depressed mood Child/Adolescent: None in psychiatry</p> <p><i>Uses:</i> Mood stabilizer</p> <p><i>Monitoring:</i> CBC and liver function studies</p>	<p><i>Box Warnings:</i> Life-threatening rash (e.g., Stevens-Johnson syndrome), toxic epidermal necrolysis, higher risk in: youth than adults, use with valproate, exceed recommended initial dose/dose escalation. May be benign — unable to predict if serious rash, stop at first sign unless clearly not drug-related.</p> <p><i>Warnings and Precautions:</i> Hypersensitivity reaction, suicidality, acute multiorgan failure, blood dyscrasias, clinical worsening and emergence of new symptoms in bipolar disorder, aseptic meningitis, medication errors because of name similarities to other drugs</p> <p><i>Adverse Events:</i> >5% in adult bipolar studies: nausea, insomnia, somnolence, back/abdominal pain, fatigue, rhinitis, xerostomia</p>	<p>There are no RCTs of lamotrigine in children and adolescents.</p>

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