**Dextromethorphan/Quinidine (dex-troe-meth-or-fan/kwin-i-deen)**

**Classification**
Therapeutic: none assigned

**Pregnancy Category**
C

**Indications**
Management of Pseudobulbar Affect (PSA) (a mood disorder consisting of extremes of emotional lability (such as laughing fits followed by crying jags) seen in association with amotrophic lateral sclerosis (ALS) and multiple sclerosis (MS)). Not effective for other forms of emotional lability.

**Action**
Dextromethorphan acts as an N-Methyl-D-aspartic acid (NMDA) receptor antagonist and sigma-1 agonist. Quinidine acts as an inhibitor of the CYP2D6 enzyme system, producing a marked increase in dextromethorphan blood levels.

**Pharmacokinetics**

Absorption: Dextromethorphan—well absorbed following oral administration; quinidine—70–80% absorbed following oral administration.

Distribution: Quinidine—widely distributed, crosses placenta, enters breast milk.

Metabolism and Excretion: Both extensively metabolized by the liver (dextromethorphan by CYP2D6, quinidine by CYP3A4); some metabolites of quinidine have anti-arrhythmic activity. 5–20% of quinidine excreted unchanged by the kidneys; some renal elimination is pH dependent.

Half-life: Dextromethorphan—13 hr; quinidine—7 hr (qHF and liver impairment).

**Time/Action Profile (blood levels)**

<table>
<thead>
<tr>
<th>ROUTE</th>
<th>ONSET</th>
<th>PEAK</th>
<th>DURATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Oral</td>
<td>15–30 min</td>
<td>unknown</td>
<td>unknown</td>
</tr>
<tr>
<td>Oral</td>
<td>30 min</td>
<td>1–1.5 hr</td>
<td>unknown</td>
</tr>
</tbody>
</table>

**Contraindications/Precautions**

Contraindicated in: Known hypersensitivity to dextromethorphan, known hypersensitivity to quinidine, quinine or mefloquine, including previous hepatitis, bone marrow depression, hypekalemic syndrome or other hypersensitivity reactions. Concurrent use of quinidine with monoamine oxidase inhibitors (MAOIs), the use within 14 days of MAOIs, prolongation of the QT interval, history suggestive of torsades de pointes or HF; Concurrent use of drugs that prolong the QT interval and are metabolized by the CYP2D6 enzyme system, including thioridazine and pimozide; Complete AV block (without implanted pacemaker) or risk of AV block.

Use cautiously in: CYP2D6 poor metabolizers (quinidine component will not contribute to effectiveness; seen in 7–10% of Caucasians and 5–6% of African Americans, consider genotyping those at risk of quinidine toxicity); Patients with left ventricular hypertrophy (LVH) or left ventricular dysfunction (LVD), history of hypertension, stroke or coronary artery disease; Electrolyte abnormalities, especially hypokalemia and hypomagnesemia; Risk of QT prolongation; Correct before use; Myasthenia gravis (quinidine may worsen condition); Severe hepatic/renal impairment (increased blood levels likely); Other underlying neuromuscular diseases.

**Adverse Reactions/Side Effects**

CNS: Dizziness, weakness.

Resp: Cough.

CV: Peripheral edema, QL prolongation.

GI: Diarrhea, flatulence, hepatitis, liver enzymes, vomiting.

Hemat: Thrombocytopenia.

Misc: Hypersensitivity reactions including lupus-like syndrome.

**Interactions**

Drug-Drug: Concurrent use with MAOIs, risk of serotonin syndrome; MAOI use should be discontinued at least 14 days before/after/allow 14 days after discontinuing to start MAOIs; Blood levels and risk of adverse reactions from desipramine and paroxetine; Dose of antidepressants and determine dose by clinical response; Concurrent therapy with strong or moderate inhibitors of the CYP3A4 enzyme system including itraconazole, clarithromycin, diltiazem, verapamil, ritonavir, saquinavir, telithromycin, and nefazodone; Risk of QT prolongation; carefully monitoring recommended; Concurrent use with SSRIs or tricyclic antidepressants may result in...
Continued

serotonin syndrome. Avoid concurrent use with drugs that prolong QT interval together with drugs that are metabolized by CYP2D6 including thioridazine and pimozide. When using with drugs that prolong QT interval and drugs that are moderate/strong inhibitors of CYP3A4 ECG monitoring is recommended.

Concentrations of drugs that are metabolized by CYP2D6, especially those with narrow therapeutic indices should be undertaken with caution. Dose modifications or choosing an alternative agent may be necessary, including desipramine and codeine. Blood levels and risk of toxicity/adverse reactions from desipramine daily dose should not exceed 60 mg/day or pimozide dose should not exceed 15 mg/day. Blood levels and the risk of toxicity from digoxin, careful monitoring recommended. T CN藤 depressant with other CNS depressants including antihistamines, some antidepressants, sedatives/ hypnotics and alcohol.

Route/Dosage

PO (Adults): One capsule (dextromethorphan 30 mg/quinidine 10 mg) daily for seven days, then increase to one capsule every 12 hr.

NURSING IMPLICATIONS

Assessment

● Assess symptoms of pseudobulbar affect (involuntary, sudden, frequent episodes of laughing or crying) periodically during therapy.

● Monitor for worsening of myasthenia gravis and other conditions sensitive to anticholinergic effects of quinidine.

● Monitor ECG in patients with left ventricular hypertrophy, left ventricular dysfunction, or patients taking drugs that prolong QT interval. Obtain ECG at baseline and 5–10 days after 1st dose in patients at risk. Re-evaluate ECG if risk factors (drugs associated with QT prolongation, electrolyte abnormalities, hypokalemia, hypomagnesemia, bradycardia, family history of QT abnormalities) change during therapy.

● Assess for symptoms of thrombocytopenia (lightheadedness, chills, fever, nausea, vomiting). May be fatal. Discontinue therapy if thrombocytopenia occurs. Do not restart, as more rapid and more severe thrombocytopenia may occur.

● Assess for symptoms of lupus-like syndrome (arthralgias, positive antinuclear antibody test, rash, bronchospasm, lymphadenopathy, hemolytic anemia, rashes, seizures, angioedema, agranulocytosis, myalgia, pneumonitis) associated with quinidine.

● Monitor for signs of hepatitis (fever, thrombocytopenia, rash). Usually occurs during first few weeks of therapy and resolves when quinidine is withdrawn.

● Assess for serotonin syndrome (mental changes [agitation, hallucinations, coma], autonomic instability [nystagmus, labile BP, hyperthermia], neuromuscular aberrations [hyperreflexia, incoordination], and/or GI symptoms [nausea, vomiting, diarrhea]), especially in patients taking serotonergic drugs (SSRIs, SNRIs, triptans).

● Lab Test Considerations: Quinidine may cause thrombocytopenia. Monitor platelet count periodically during therapy.

● Monitor serum potassium and magnesium periodically during therapy.

Potential Nursing Diagnoses

Deficient knowledge, related to medication regimen (Patient/Family Teaching)

Implementation

● Monitor ECG and hypokalemia before starting therapy.

● PO: Administer 1 capsule daily for 7 days, then increase to twice daily with 12 hr between doses.

Patient/Family Teaching

● Instruct patient to take medication as directed, no more than 2 capsules daily and approximately 12 hr between doses. Do not double missed doses. Advise patient not to share medication with others, even if they have the same symptoms may be dangerous.

● Monitor for signs of hepatitis (fever, thrombocytopenia) before starting therapy.

● PO: Administer 1 capsule daily for 7 days, then increase to twice daily with 12 hr between doses.

● Instruct patient to notify health care professional immediately if symptoms of thrombocytopenia, hepatitis, lupus-like syndrome occur.

● Instruct patient to notify health care professional if they feel faint or lose consciousness, may be a sign of cardiac effects.

● Instruct patient to notify health care professional if all Rx or OTC medications, vitamins, or herbal products being taken and to avoid concurrent use of Rxs, OTC, and herbal products without consulting health care professional.

● Instruct patient to notify health care professional if symptoms of PIA occur or worsen.

© 2015 F.A. Davis Company
Evaluation/Desired Outcomes

- Improvement in symptoms of PBA. Reassess need for continued treatment periodically; spontaneous improvement may occur.

Why was this drug prescribed for your patient?