

Diltiazem Shortages

In light of the recent diltiazem shortages, many patients' regimens will require modification. One can consider switching diltiazem formulations; patients can be changed to prolonged- or extended-release formulations at the same total daily dose as the regular formulation.¹ In some patients, the dosage of the sustained-release formulation may require adjustment.¹ Therefore, when switching to any other diltiazem formulation, the starting point should be the same daily dose with adjustments made as required.

Diltiazem products on the Saskatchewan Drug Plan formulary:²

Diltiazem SR: 60, 90, 120
Diltiazem CD (various manufacturers) 120, 180, 240, 300
Diltiazem ER capsule = Tiazac 120, 180, 240, 300, 360
Diltiazem ER tablet = Tiazac XC 120, 180, 240, 300, 360
Diltiazem immediate release tablet – 30, 60 (**Not** indicated for hypertension)

Other CCBs indicated for **hypertension** include verapamil, amlodipine, felodipine and nifedipine XL
Dosing:^{1,4}

Diltiazem (for reference)

Cardizem CD: initial 120-240 mg daily; usual 240-360 mg daily; max 360 mg daily
Tiazac: initial 120-240 mg daily; max 360 mg daily
Tiazac XC: initial 180-240 mg daily; max 360 mg daily

Verapamil:

Immediate release: Initial 80 mg/day; Max: 160 mg TID
Covera HS: Initial 180 mg/day; usual 180-360 mg/ day Max: 480 mg/ day (dosed qHS)
SR: Initial 180 mg/day; usual 180-480 mg/ day Max: 480 mg/ day (dosed once or twice daily (give in divided dose if daily dose ≥ 360 mg)

Amlodipine:

Initial: 5 mg/day (2.5 mg if hepatic impairment⁴) Max: 10 mg/day (dosed once daily)

Felodipine:

Initial 5 mg/day (2.5 mg if hepatic impairment or elderly); usual 10 mg/ day Max: 10 mg/ day (dosed once daily)

Nifedipine XL:

Initial 30 mg/day; usual 60 mg/ day Max: 90 mg/ day (dosed once daily)

For **stable angina**, long acting verapamil (Covera®), amlodipine and nifedipine XL are indicated.
Doses:^{1,4}

Diltiazem:

Cardizem CD: initial 120-180 mg daily; max 360 mg daily
Tiazac: initial 120-180 mg daily; max 360 mg daily
Tiazac XC: initial 180 mg daily; max 360 mg daily

Immediate release tablets: Chronic stable angina (symptomatic despite adequate doses of beta-blocker and/or nitrates or intolerance to those agents) or vasospastic angina: initial 30 mg QID; average 240 mg/day in divided doses; max 360 mg/day in 3-4 equally divided doses

Verapamil:

Immediate release: initial 80 mg TID-QID; max 480 mg/day, divided
Covera HS: Initial 180 mg/day Max: 480 mg/ day (dosed qHS)
(Isoptin SR does not have indication for stable angina)

Amlodipine:

Initial: 5 mg/day (2.5 mg if hepatic impairment⁴) Max: 10 mg/day (dosed once daily)

Nifedipine XL:

Initial 30 mg/day Max: 90 mg/ day (dosed once daily)

Notes:

Verapamil and diltiazem lower heart rate and reduce blood pressure, whereas the dihydropyridine CCBs (nifedipine, felodipine, amlodipine) exert their effects primarily by arteriolar dilatation. Calcium channel blockers are the treatment of choice in patients with coronary arterial spasm.⁵

When using for stable angina, titrate the dose of diltiazem and verapamil to achieve a resting heart rate between 50 and 60 beats per minute (BPM) and an exercise heart rate that does not exceed 100 to 110 BPM. Immediate release CCBs are not recommended as monotherapy for stable angina. The dose of dihydropyridines (e.g. amlodipine, nifedipine) should be titrated to achieve maximum symptom relief with minimal adverse effects.⁵

If diltiazem is being used for rate control, an appropriate alternate CCB is verapamil.⁶

When switching products, BP should be monitored and nitrates should be on hand if the indication is stable angina.

This would be a good time to assess if other agents may serve the hypertensive patient better (any new comorbidities since starting diltiazem treatment?).⁷

Keep in mind diltiazem and verapamil are inhibitors of 3A4. All CCBs are substrates of 3A4. Additionally, verapamil is also a substrate of CYP1A2, 2C9, and 2C19.⁴

Prepared October 21, 2009 by Carmen Bell, Drug Information Consultant, SDIS
References available upon request.

Saskatchewan Drug Information Service
Telephone: 1-800-667-3425 (SK); 966-6340 (Saskatoon)
Fax: (306) 966-2286
www.druginfo.usask.ca

Saskatchewan Drug Information Service
Telephone: 1-800-667-3425 (SK); 966-6340 (Saskatoon)
Fax: (306) 966-2286
www.druginfo.usask.ca