Cardiac Services BC
Provincial Health Services Authority

BC AFC Digoxin Initiation and Titration Pathway (For Prescribers)

Document Purpose: Standardized recommendations for initiation of **digoxin** and ongoing monitoring/patient management

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Clinical Indication:

- Rate control of AF, usually as an adjunct to beta-blockers or calcium channel blockers for to optimize rate response

Absolute Contraindications:

- High degree atrioventricular conduction disorders (unless functioning pacemaker is present)

Relative Contraindications (caution for use):

- Sinus bradycardia (<50 bpm) or sinus node dysfunction (e.g. sick sinus syndrome)
- Recent MI (acute ischemia)
- Hypertrophic cardiomyopathy
- Cardiac amyloidosis
- Active myocarditis
- Risk factors for toxicity:
  - Elderly patients > 70y: ↓ lean muscle mass, ↓ Cr relative to renal function
  - Hypokalaemia (potentiates Na^+K^+ ATPase), Hypoxemia, Hypomagnesaemia
  - Hypothyroidism, Renal failure
  - Cardiac disease (ischemia, acute MI, myocarditis) can ↑ sensitivity to digoxin
- Drug interactions affecting digoxin levels (see drug monograph for complete list):
  - ↑ dig levels: quinidine, verapamil, diltiazem, nicardipine/felodipine, amiodarone, propafenone
  - ↓ dig levels: antacids, metoclopramide, cholestyramine, Metamucil, phenytoin, 5-ASA

Baseline Investigations:

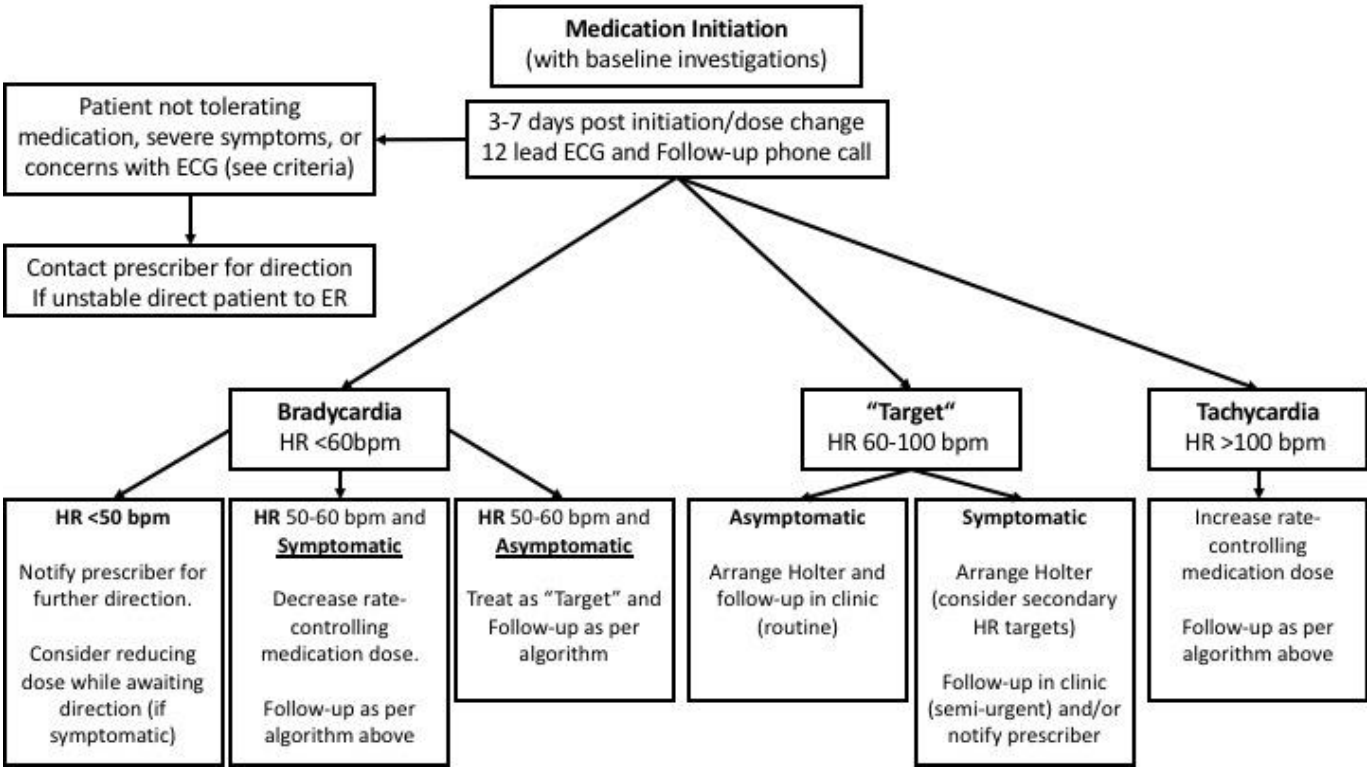
- Blood pressure
- ECG (within 1 week)
- Echocardiogram (or other assessment of LV function; within 1 year)
- Laboratory investigations (within 1 week) - Serum electrolytes, and Serum Creatinine/eGFR

Dosing:

- **Loading**
  - Not usually necessary as an outpatient
  - If required consider 0.5 mg PO x 1 dose then 0.25 mg daily for 2 days then maintenance dose
- **Titration**

Current Dose	Increase Dose to	Decrease Dose to
0.0625mg once daily	0.125mg once daily	-----
0.125mg once daily	0.25mg once daily	0.0625mg once daily
0.25mg once daily	----------	0.125mg once daily

Dose Titration Algorithm:



*Secondary targets:

- If patients remain symptomatic at target resting heart rate, consider these secondary targets:
    - Average HR < 90bpm on 24 hour Holter monitor
    - HR with moderate exercise <110bpm (i.e. 6 minute walk)
    - HR on exertion <110% age predicted maximum (220-age x 1.1 on EST or maximum Holter HR)

Criteria for Notification of MD/NP

- **Clinical**
    - Syncope
    - Dizziness/lightheadedness - Notify MD/NP if acute onset, severe, or persistently problematic
    - New or worsening SOB, or New or worsening fluid retention
    - Symptoms of medication toxicity
- **ECG/Holter**
    - Symptomatic bradycardia (<50 bpm)
    - Symptomatic hypotension (<80mmHg systolic)
    - Uncontrolled tachycardia (resting or average HR >120 bpm)
    - Asymptomatic pauses >3 seconds on Holter monitor or ECG
    - All symptomatic pauses of any duration on Holter monitor or ECG
    - QTc >500msec or an increase in QTc >25% as per ECG
    - New heart block
        - lengthening of PR interval > 250ms
        - Any new 2nd or 3rd degree heart block
        - new widening QRS >120msec
    - Ventricular tachycardia >5 beats, >5% PVCs

Monitoring:

Parameter	Frequency	Considerations
Patient response (symptoms/ECG)	Within 1 week of initiation or dose change	Follow titration algorithm to achieve optimal heart rate
Blood Pressure	With each dose change and at each patient follow-up appointment	Supportive measures to mitigate orthostatic hypotension
Medication Tolerance	With each dose change, and at each patient follow-up appointment	Syncope o report to ER, notify prescriber Dizziness/lightheadedness o notify prescriber if acute onset, severe, or persistently problematic Symptoms of digoxin toxicity • Fatigue, anorexia, nausea/vomiting/diarrhea, abdominal pain, weight loss, headache, blurred vision (yellow-green vision), visual hallucinations, insomnia, confusion • Notify MD/NP • Obtain digoxin trough level
24 hour Holter Monitor	At the conclusion of titration phase to confirm that optimal heart rate target has been achieved	Follow titration algorithm to achieve optimal primary or secondary heart rate targets
Labs (renal function, electrolytes)	If eGFR >60 mL/min - check every six months If eGFR of 30-60 mL/min – check every three months	Declining renal function can lead to digoxin accumulation
Digoxin levels	4 weeks post initiation and yearly, and in the event of signs or symptoms of toxicity	Digoxin trough level preferred - blood draw prior to next scheduled dose or 8 – 12 hours after a dose Be aware of drug interactions e.g. diltiazem, verapamil, dronedarone and amiodarone can increase dig levels

Patient counseling to include:

Contact clinic if symptoms or signs of toxicity

- Fatigue, anorexia, nausea/vomiting/diarrhoea, abdominal pain, weight loss, headache, blurred vision (yellow-green vision), visual hallucinations, insomnia, confusion
- Medication Interactions

Tapering / Discontinuation Schedule: Not required