

Angiotensin Converting Enzyme (ACE-1)/ Angiotensin Receptor Blocker (ARB): Titration by RN in Heart Function Clinic

Site Applicability

SPH Heart Function Clinic

Practice Level

Specialized: Nurse titration of angiotensin converting enzyme inhibitors or angiotensin receptor blockers may only be performed by RNs employed to work in the Heart Function Clinic

Need to Know

- This protocol is to be used for patients placed onto the “Fast Track” or “Standard Track” Pathway within the Heart Function Clinic
- Refer to B.C. College of Nurses and Midwives Standard – Virtual health
https://www.bccnm.ca/RM/learning/Pages/virtual_care.aspx
- Nurse titration of ACE-1 or ARB require physician orders-refer to PowerPlan: *CARD Outpatient Heart Function Clinic Medication Titration (Module)*
- **Angiotensin Converting Enzyme Inhibitors** (ACE- I) are recommended for the treatment of heart failure. They have been shown to improve symptoms and decrease mortality in patients with left ventricular ejection fraction 40% or less. As well, they prevent ventricular remodeling, hospitalizations, and recurrent myocardial infarctions
- **Angiotensin Receptor Blockers** (ARBs) are generally reserved for patients who are intolerant of ACE-I
- ACE-I or ARBs are generally started at a low dose and titrated upwards at 2 to 4 weekly intervals depending on how the patient is tolerating the dose. This up titration can be done in person, or over the phone

Protocol

Assessment

Prior to initiation of ACE- I or ARB

At baseline, the physician should:

- Examine the patient determine that the patient suitable for the drug and RN up titration
- Determine if they feel virtual titrations are suitable for a particular patient and document this

At any time the nurse may decide to have the patient come into the clinic if they believe that telephone titrations are not safe or feasible. Refer to "Heart Function Clinic Virtual Visit Decision Support Guideline" to aid with decision. Examples include (but not limited to):

- Cognitive deficit
- English as a second language
- Hearing deficit
- Confusion with medications and doses
- Patient's condition is not conducive to telephone management

With patient, the nurse should assess

- Blood pressure
- Ability to have regular bloodwork performed
- Understanding of medications
- Ability to communicate effectively over the phone

Prior to each up titration of ACE-I or ARB

The nurse should review:

- Blood pressure (if phone assessment – check patient recordings)
- Symptomatic hypotension or postural drop of more than 20mmHg in systolic pressure
- Heart failure symptoms
- Weight and fluid status
- Bloodwork performed at 7 to 10 days after last up titration
- Signs/symptoms of ACE – I intolerance
 - Angioedema
 - New, dry cough

Consult with the physician if:

- Rise in creatinine of over 30% from physician documented baseline

- Symptomatic hypotension or postural drop of BP more than 20 mmHg in systolic pressure
- Signs or symptoms of ACE-I or ARB intolerance
- Other changes that would normally prompt a physician call

Interventions

Patients can feel quite symptomatic when first starting these drugs and also soon after up titration. Timing of dosing can vary according to symptoms. If a patient is lightheaded in the mornings, consideration of the following may be effective in reducing symptoms:

- Splitting once a day dosing into BID
- Taking once a day dosing at noon rather than in the morning
- Taking dose at night rather than in the morning
- Taking BID dosing a few hours before or after beta blocker
- Moving slowly from lying or sitting to standing to avoid postural hypotension

ACE- I Up Titration Table			
Drug	Usual starting dose ordered by physician	Nurse to increase by:	Target Dose
Ramipril (Altace)	1.25 to 2.5 mg BID	50 to 100% every 2 to 4 weeks	5 mg BID or 10 mg once daily
ARB Up Titration Table			
Drug	Usual starting dose ordered by physician	Nurse to increase by:	Target Dose
Candesartan (Atacand)	4 mg once daily	50 to 100% every 2 to 4 weeks	32 mg once daily
Valsartan (Diovan)	40 mg BID	50 to 100% every 2 to 4 weeks	160 mg BID

***NOTE:** MDs to enter specific orders in Cerner if ordering other ACE/ARB for RN titration not in this table

Documentation

The following should be completed by the physician prior to nurse titration:

- Document in clinic note: "Nurse to perform up-titration as per protocol" & specify whether patient is suitable for telephone up-titrations
- Order *CARD Outpatient Heart Function Clinic Medication Titration (Module)*

The following should be completed by the RNs before/during the titration period:

- Review PowerPlan order & physician's documentation
- Document on PowerForm: "Heart Function Clinic"
 - Section: "Medication Titrations"
 - Fill out all pertinent columns with each titration
- Alternatively the nurse can select the "Medication Titration" PowerForm, which flows into the same section as the aforementioned PowerForm

Patient and Family Education

Provide patient/family with written and verbal information

- ACE-I and ARB education handouts prepared by pharmacy
- Fill out "Snapshot of your visit" form if in person visit, summarizing changes made from clinic visit
- Perform "Teach-back" method and ask patient/family to repeat titration instructions to you before end of virtual health session/clinic visit

Related Documents

1. [B-00-13-10051](#) – Furosemide (Oral) Titration by RN in Heart Function Clinic
2. [B-00-13-10052](#) – Beta Blocker Titration by RN in Heart Function Clinic
3. [B-00-13-10233](#) - Angiotensin receptor-neprilysin inhibitor (ARNI) Titration by RN in Heart Function Clinic

References

1. McDonald, M. et al. (2021). Canadian Cardiovascular Society/Canadian Heart Failure Society Heart Failure Guidelines Update: Defining a New Pharmacological Standard of Care for Heart Failure with Reduced Ejection Fraction. *Canadian Journal of Cardiology* 37(2021) 531-546.
[https://www.onlinecjc.ca/article/S0828-282X\(21\)00055-6/fulltext](https://www.onlinecjc.ca/article/S0828-282X(21)00055-6/fulltext)
2. Ezekowitz, J. et al. (2017) 2017 Comprehensive Update of the Canadian Cardiovascular Society Guidelines for the Management of Heart Failure 33(11) 1342-1433.
[https://www.onlinecjc.ca/article/S0828-282X\(17\)30973-X/fulltext](https://www.onlinecjc.ca/article/S0828-282X(17)30973-X/fulltext)
3. B.C College of Nurses and Midwives(2022). Virtual Care. Accessed date at:
https://www.bccnm.ca/RN/learning/virtual_care/Pages/Default.aspx

Persons/Groups Consulted

Heart Function Clinic Registered Nurses and Physician team

Heart Function Clinic Clinical Pharmacist

Developed By

Clinical Nurse Specialist, Heart Failure/VAD/Transplant

First Released Date:	February 2012
Posted Date:	25-APR-2022
Last Revised:	25-APR-2022
Last Reviewed:	25-APR-2022
Approved By: <i>(committee or position)</i>	PHC
	Professional Practice Standards Committee
Owners: <i>(optional)</i>	PHC
	Cardiology