Thank you for participating in the ACTION Heart Failure (HF) Medication Titration Project, which is being led in conjunction with the ACTION HF initiative. This document is intended to summarize how you as a practitioner will enter data on your patients for this project.

OBJECTIVES:

- To increase the percentage of patients who are on goal doses of guideline-directed medications for left ventricular systolic dysfunction
- To provide a consistent framework for which patients undergo medication titration for left ventricular systolic dysfunction
- To ensure that this framework is consistent with existing professional evidence-based and consensus recommendations regarding HF medication titration
- To generate real-world data that can be used to learn about opportunities for improving care and drive rapid change

ELIGIBILITY CRITERIA:

- Patients whose clinicians will use GDMT to achieve maximally tolerated doses of ACEi/ARB/ARNI, BB and MRA.
- No history of heart transplant

ENROLLMENT TIMING:

- Discharge from first heart failure admission OR
- First clinic visit

INTERVENTION:

The intervention for the project involves the use of ACTION Medication titration worksheets, which provide starting doses, titration amounts, and recommendations regarding safety parameters, monitoring, and timing of next dose change. We are asking that you adhere to these recommendations as much as possible as part of participating in this project, understanding that these are guides and should not supersede clinical judgement. These recommendations incorporate the most commonly used and available medications among the major classes of guideline-directed medical therapies (GDMT) consistent with adult and pediatric HF medication recommendations.[1,2] Dosing is based on ACC/AHA Guidelines for adult-size (>50 kg) patients[1,3] Weight-based dosing recommendations were derived from available evidence, and, when there was conflicting or non-existent data, by ACTION Med Titration team

consensus.[4-10] Worksheets are available for those <50 kg and ≥50 kg, with various combinations of the specific medications in each class, and a cover sheet is available to quickly identify applicable worksheets for each patients' medication combination.

Medication Up-Titration Worksheet

Patient > 50 kg

Symbol Key: S= Review Symptoms; BP = Review Blood Pressure; HR = Review Heart Rate; L = Review Labs

* Discuss order of titration with care team and mark appropriately

ACE-I/ARB/ARNI: Lisinopril (every 1-2 weeks)

Initial Dose	Titration Amount	Goal Dose Minimum	Dose Maximum *(Do not exceed)*
5 mg daily	*5 mg/dose*	*20 mg daily*	*40 mg daily*

Titration Schedule

Titration	Dose	Intended Step*	Date Achieved
Medication initiated	*5 mg daily*		
Titration 1 [S; BP]	*10 mg BID*		
Titration 2 [S; BP; L]	*15 mg BID*		
Titration 3 [S; BP]	*20 mg BID*		

Beta Blocker: Metoprolol Extended Release (every 1-2 weeks)

Initial Dose	Titration Amount	Goal Dose Minimum	Dose Maximum *(Do not exceed)*
12.5-25 mg/dose daily	*25 mg/dose*	*100 mg/dose daily*	*200 mg/dose daily*

Titration Schedule

Titration	Dose	Intended Step*	Date Achieved
Medication initiated	*12.5- 25 mg/dose daily*		
Titration 1 [S]	*37.5-50 mg/dose daily*		
Titration 2 [S; BP; HR]	*62.5-75 mg/dose daily*		
Titration 3 [S; BP; HR]	*87.5-100 mg/dose daily*		

MRA: Eplerenone (every 2 weeks)

Initial Dose	Titration Amount	Goal Dose Minimum	Dose Maximum *(Do not exceed)*
25 mg/dose daily	*12.5-25 mg/dose*	*25 mg/dose daily*	*50 mg/dose daily*

Titration Schedule

Titration	Dose	Intended Step*	Date Achieved
Medication initiated	*25 mg/dose daily*		
Titration 1 [L]	*If needed to reach max dose*		

An example of a worksheet for a >50 kg patient who is planned to be on lisinopril, metoprolol XL, and eplerenone is below. Suggested medication doses are provided, as are recommended monitoring (blood pressure, heart rate, labs, symptoms) at each titration step. Order of titration, as well as specific lab and vital parameters requiring either dose reduction or dose maintenance, are not specified, and should be determined by the treating team according to standard practice and clinical judgement. You will use the Medication Up-Titration Worksheets to document the date and doses used for your individual patients at up-titrations. Please save these worksheets for each patient.

DATA ENTRY:

1. Baseline data collection: at time of first outpatient visit
    a. Patient's weight
    b. Degree of LV dysfunction
    c. Medications on at time of first visit, including doses (in total mg) and frequency
    d. If medication worksheet was started and discussed with family
2. 3-month visit (window of 2-4 months)
    a. Patient's weight
    b. Degree of LV dysfunction
    c. Medications on at time of first visit, including doses (in total mg) and frequency
    d. Personnel undertaking titration
    e. Significant HF event (heart failure admission, VAD, transplant, etc.)
    f. Clinical events preventing progression of titration
    g. Systems events preventing progression of titration
    h. Number of clinical interactions between enrollment and 3-month visit
3. 6-month visit (window of 5-7 months)
    a. Patient's weight
    b. Degree of LV dysfunction
    c. Medications on at time of first visit, including doses (in total mg) and frequency
    d. Personnel undertaking titration
    e. Significant HF event (heart failure admission, VAD, transplant, etc.
    f. Clinical events preventing progression of titration
    g. Systems events preventing progression of titration
    h. Number of clinical interactions between enrollment and 6-month visit

EVALUATION:

We have already collected baseline and follow-up data at a window 5-7 months after the first outpatient visit in a retrospective cohort of patients across various centers, which will be used to compare the effectiveness of our interventions in this project.

References

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