Intermountain® Healthcare

CLINICAL GUIDELINE FEBRUARY 2022

ACE Inhibitors (ACEIs) and ARBs

For Patients with Heart Failure

2022 UPDATE

INDICATIONS

ACE inhibitors (ACEIs) have Class I (LOE A)* indication for **all** patients with heart failure with reduced ejection fraction (**HFrEF,** defined as EF ≤ 40 %) and current or prior symptoms of heart failure (unless contraindicated).

ACEIs should be used in combination with beta blockers and aldosterone antagonists for **HFrEF** unless a contraindication exists.

Angiotensin receptor blockers (ARBs) are recommended for heart failure patients with **HFrEF** (current or prior symptoms) who are ACEI-intolerant. Note that:

- ARBs are reasonable alternatives to ACEIs as first-line therapy unless contraindicated (see contraindications at right), especially for patients already taking ARBs for other indications.
- Routine monitoring of electrolytes is recommended due to potential for hyperkalemia especially if ACEI / ARB and aldosterone antagonists are used in combination.
- Prescribing an ARB may be considered for heart failure with preserved ejection fractio n or **HFpEF** (EF> 45%) to reduce hospitaliza tio ns (LOE IIb, Level B-R).
- Prescribing an ACEI or ARB to treat high blood pressure in **HFpEF** is reasonable

ARNI (angiotensin receptor blocker with neprilysin inhibitor) have Class I (LOE A) indication for **HFrEF** and should not be used concurrently with ACEI or ARB (see *Angiotensin Receptor-Neprilysin Inhibitor (ARNI) clinical guideline*).

INITIATION AND MONITORING

Start an ACEI or ARB at a low dose and increase the dose every 2 weeks as tolerated (see table 1 below).

Titrate to maximally-tolerated target doses; monitor blood pressure, renal function, and potassium 1 – 2 weeks after initiation and after titrations.

If a patient develops an ACEI-induced cough, switch to an ARB.

CONTRAINDICATIONS:

- Patients who have experienced angioedema with previous ACEI use. **Note**: Use caution when substituting an ARB in patients who have developed angioedema with ACEIs.
- Women who are pregnant or plan to become pregnant.

CAUTIONS:

- SPB < 80 mm Hg
- Increased serum creatinine (> 3 mg / dL)
- Bilateral renal artery stenosis
- Elevated serum potassium (> 5.0 mEq / L)
- ACEI should be stopped for 36 hours prior to starting sacubitril valsartan

PATIENT EDUCATION FOCUS:

- Avoid NSAIDs
- Angioedema
- Dry cough (with ACEI)
- Labs after starting or increasing dose

*Class I: Treatment should be used.

Level of evidence (LOE) A: Sufficient evidence from randomized trials for efficacy.

DOSING

TABLE 1. ACEI and ARB Dosing for Heart Failure Patients

	Initial Dose	Max Dose	Target Dose
ACEIs:			
lisinopril (Prinivil / Zestril)	2.5 – 5 mg, daily	20 – 40 mg, daily	20 – 40 mg, daily
captopril	6.25 mg, TID	50 mg, TID	50 mg, TID
ramipril	2.5 mg, daily	10 mg, daily	10 mg, daily
enalapril (Vasotec)	2.5 mg, BID	10 – 20 mg, BID	10 – 20 mg, BID
ARBs:			
candesartan (Atacand)	4 – 8 mg, daily	32 mg, daily	32 mg, daily
losartan (Cozaar)	25 – 50 mg, daily	150 mg, daily	100 – 150 mg, daily
valsartan (Diovan)	20 to 40 mg, BID	160 mg, BID	160 mg, BID

BID= Two times per day; TID= Three times per day

CONVERSION TABLES

TABLE 2. ACE to ARB Conversion Table

Angiotensin Receptor Blocker (ARB) Dose Conversion			
Drugs	Low Dose	Medium Dose	High Dose
losartan (Cozaar)	12.5 – 25 mg, daily	50 – 100 mg, daily	150 mg, daily
valsartan (Diovan)	40 – 80 mg, daily or divided BID	80 – 160 mg, daily or divided BID	320 mg, daily or divided BID
candesartan (Atacand)	4 – 8 mg, daily	16 mg, daily	32 mg, daily

ACE Inhibitor (ACEI) Dose Conversion					
Drugs	Low Dose				High Dose
lisinopril (Prinivil / Zestril)	2.5 mg, daily	5 mg, daily	10 mg, daily	20 mg, daily	40 mg, daily
enalapril (Vasotec)	2.5 mg, daily	5 mg, daily or divided BID	10 mg, daily or divided BID	20 mg, daily or divided BID	40 mg, daily or divided BID
captopril	6.25 mg, TID	12.5 mg, TID	25 mg, TID	50 mg, TID	
ramipril		1.25 mg, daily	2.5 mg, daily or divided BID	5 mg, daily or divided BID	10 mg, daily or divided BID

BID= Two times per day; TID= Three times per day

BIBLIOGRAPHY

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These guidelines apply to common clinical circumstances, and may not be appropriate for certain patients and situations. The treating clinician must use judgment in applying guidelines to the care of individual patients.

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