

## The MMP recommends RAMIPRIL as the preferred ACE inhibitor for the treatment of hypertension and heart failure in adults.

- ❑ This recommendation is based on a number of factors including cost, prescribing frequency, patient factors, contraindications and cautions.
- ❑ A full evaluation report is available at [www.hse.ie/yourmedicines](http://www.hse.ie/yourmedicines)

### Therapeutic Indications for Ramipril

- Treatment of hypertension.
  - Treatment of symptomatic heart failure.
  - Treatment of renal disease.\*
  - Cardiovascular prevention.\*
  - Secondary prevention after acute myocardial infarction.\*
- \* See Summary of Product Characteristics (SmPC) for full details.

### Ramipril dosing information<sup>3</sup>

Indication	Initial Dose	Titration	Note
Hypertension	2.5 mg once daily	Double the dose every 2-4 weeks to a maximum dose of 10 mg once daily	Patients with strongly activated renin-angiotensin-aldosterone system (RAS) may require a lower starting dose of 1.25 mg
Heart Failure	1.25 mg once daily	Double the dose every 1-2 weeks to a maximum dose of 10 mg daily in 1-2 divided doses.	SmPC states that two administrations per day are preferable

### Initiating and monitoring of ACE inhibitors<sup>1,2</sup>

- Measure **renal function** (serum creatinine and estimated glomerular filtration rate (eGFR)) and **serum electrolytes** before starting treatment, 1-2 weeks after starting treatment and 1-2 weeks after each dose increase. For people who are at higher risk of hyperkalaemia or deteriorating renal function, consider checking renal function and serum electrolytes sooner (within 1 week). Thereafter, check renal function and serum electrolytes annually unless clinical judgement or abnormal blood testing parameters indicate a need for more frequent monitoring.
- Check **blood pressure** 4 weeks after each dose titration.

### Contraindications with ACE inhibitors<sup>1,2</sup>

- **Angioedema:** All ACE inhibitors are contraindicated in patients with a history of angioedema associated with previous ACE inhibitor treatment.
- **Concomitant use of an ACE inhibitor with aliskiren-containing products** in patients with diabetes mellitus or renal impairment (eGFR < 60 ml/min/1.73 m<sup>2</sup>).
- **Pregnancy:** Treatment with an ACE inhibitor should ideally be stopped as soon as pregnancy is detected and, if appropriate, alternative treatment should be started.
- **Breastfeeding:** ACE inhibitors are not recommended as there is limited information on their safety.

### Cautions with ACE inhibitors<sup>1,2</sup>

- **Ethnic differences:** ACE inhibitors are apparently less effective in lowering blood pressure in people of black African/ African-Caribbean family origin due to higher prevalence of low-renin status.
- **Renal impairment:** ACE inhibitors should be used with caution in those with pre-existing renovascular disease, and should be initiated by a specialist only.
- Concomitant use of **diuretics**.
- **Peripheral vascular disease** or **generalised atherosclerosis:** This is due to risk of clinically silent renovascular disease.
- **Hypertrophic cardiomyopathy.**
- Severe or symptomatic **aortic stenosis**.
- **Collagen vascular disease:** There is a possible increased risk of agranulocytosis.

### Adverse effects with ACE inhibitors<sup>2</sup>

Renal Impairment	Hyperkalaemia
Cough	Angioedema
Dizziness & Headaches	Hepatobiliary disorders

#### Abbreviations

**ACE:** angiotensin-converting enzyme; **eGFR:** estimated glomerular filtration rate; **RAS:** renin-angiotensin-aldosterone system ; **SmPC:** Summary of product characteristics.