

# How to Monitor and Manage Acute Changes in Kidney Function Related to RAASi



**ASPC**  
The American Society for Preventive Cardiology



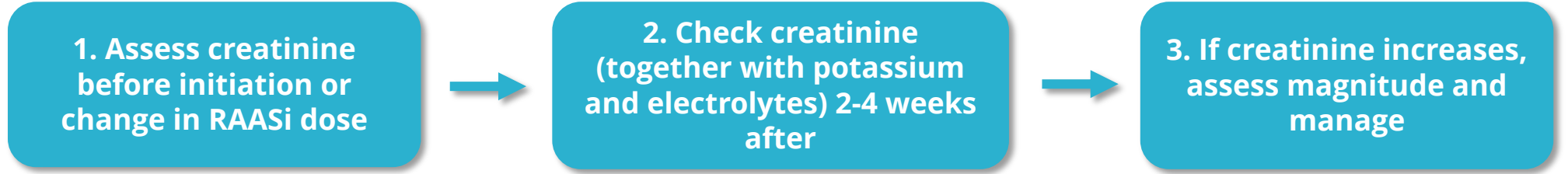
**HFA**  
Heart Failure Association  
European Society of Cardiology



**ISN**  
INTERNATIONAL SOCIETY OF NEPHROLOGY



**RPA**  
Renal Physicians Association



**Note:** increase in serum creatinine can be a result of a haemodynamic RAASi effect

Creatinine increases <50% from baseline  
*(as long as and eGFR remains >20ml/min)*

- Acceptable, no changes in RAASi needed if kidney function stabilizes
- Further assess creatinine as part of the long-term monitoring

Creatinine increases between 50 to 100%  
*(as long as eGFR remains >20ml/min)*

- Reduce dose to half or temporary withhold RAASi
- Exclude reversible causes (refer to info on page 2)
- Reassess kidney function after 2-4 weeks
  - If improvement, increase dose or re-introduce at half dose (check creatinine again in 2-4 weeks)

Creatinine increases more than 100%

- Temporarily withhold RAASi
- Exclude reversible causes (refer to info on page 2)
- Reassess kidney function in 2-4 weeks
  - If improvement, re-attempt the doses (check creatinine in 2-4 weeks)

**Note:** Keep in mind that discontinuation and reducing doses of RAASi can worsen outcomes in HF and CKD

- *In the management of HF as a primary indication for RAASi, a more aggressive approach is preferred if kidney function is preserved*
  - *In advanced CKD, a more conservative approach may be necessary*

## Following Work Up is Recommended:

### Causes for worsening kidney function

#### Pre-renal

- Volume depletion (gastro-intestinal losses, excessive diuretic use inadequate intake)
- Renal venous congestion due to volume overload
- Deterioration of LV function

#### Renal

- Nephrotoxic medications
- Drugs that alter glomerular hemodynamic
  - Interstitial nephritis
  - Glomerular disease
- Urinary tract Infection, sepsis

#### Post-renal

- Urinary obstruction
  - Ascites

### Evaluation and clinical assessment

Volume status evaluation (skin turgor, blood pressure, lung auscultation, jugular venous pressure, oedema)

- Concurrent or new medications (NSAIDs/Antibiotics/SGLT2i/MRAs)

Abdominal examination and history of anuria, or bowel obstruction or others.

### Lab and Imaging evaluation

Echocardiogram and renal ultrasound +/- renal Doppler

- Urinalysis
- Kidney biopsy

Midstream urine, kidney ultrasound