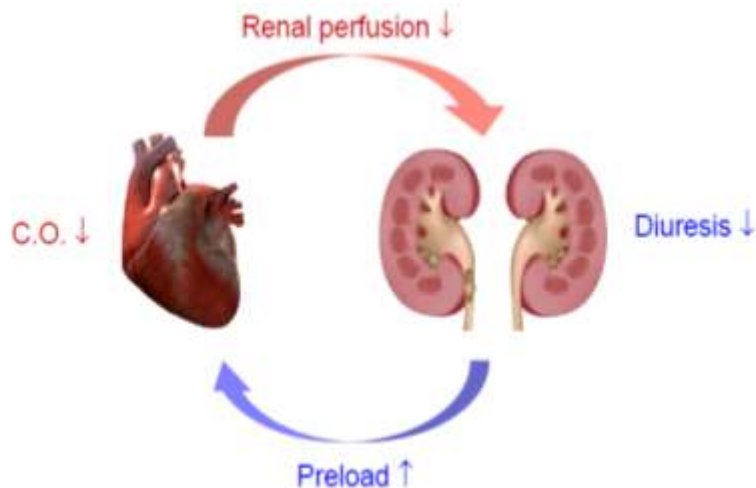


Heart failure with low ejection fraction and chronic kidney disease

What do the guidelines say?

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Cardio-Renal Interactions

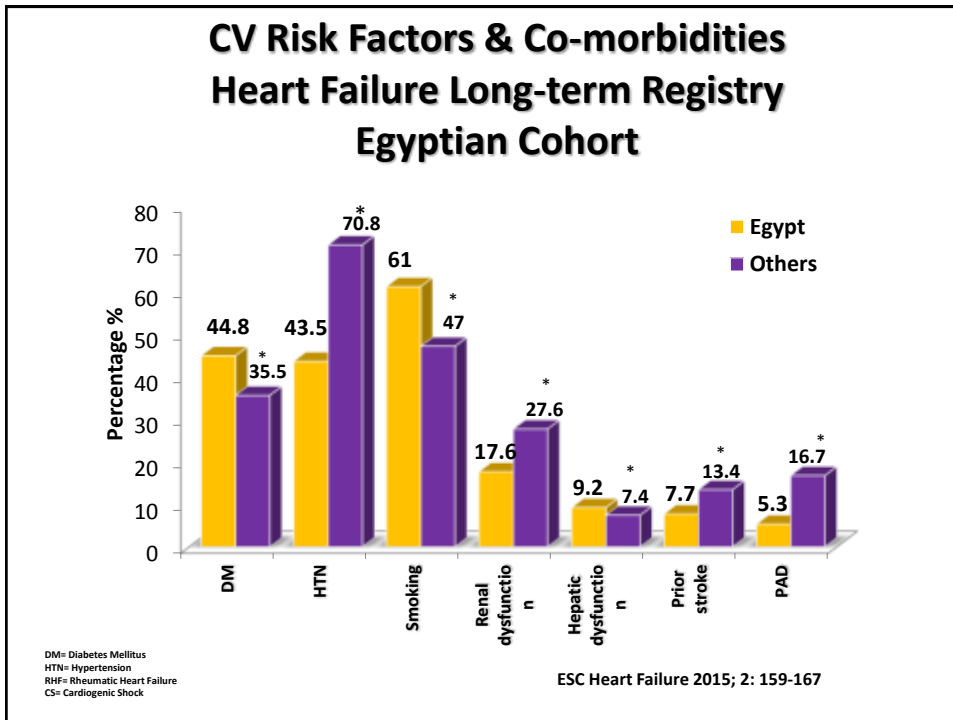


Interaction of Heart Failure and Chronic Kidney Disease

- Heart Failure (HF) and Chronic Kidney Disease (CKD) frequently coexist
- Both share many risk factors
 - Diabetes
 - Hypertension
 - Hyperlipidaemia
- Both interact to worsen prognosis

Chronic Kidney Disease (CKD)

- CKD is generally defined as
 - **eGFR** <60 mL/min/1.73 m²
 - and/or
 - **albuminuria**
 - ❖ high 30 –300 or
 - ❖ very high > 300 mg albumin/1 g of urine creatinine



Severe Renal Dysfunction

- Patients with severe renal dysfunction $eGFR < 30 \text{ mL/min/1.73m}^2$ have systematically been excluded from randomized clinical trials and therefore there is lack of evidence-based therapies in these patients.

Worsening Renal Function

- Worsening renal function indicates an increase in serum creatinine, usually by (0.3 mg/dL) and/or a 25% increase or a 20% drop in GFR.
- These apparently small changes are frequent, they promote the development and progression of CKD and, as a consequence, can worsen the prognosis of HF.

Worsening Renal Function

- Increases in creatinine during an AHF hospitalization are not always clinically relevant, especially when they are accompanied by appropriate decongestion, diuresis and haemoconcentration

Worsening Renal Function during RAAS inhibitor therapy

- WRF is relatively common, especially during initiation and uptitration of RAAS inhibitor therapy.
- The resultant reduction in GFR is usually small and should not lead to treatment discontinuation unless there is a marked decrease, as the treatment benefit in these patients is probably largely maintained.

Worsening Renal Function

- When large increases in serum creatinine occur, the patient should be assessed thoroughly for
 - ❖ possible renal artery stenosis
 - ❖ excessive hyper- or hypovolaemia,
 - ❖ concomitant medication
 - ❖ hyperkalaemia

Acute Kidney Injury (AKI)

- Large increases in serum creatinine, termed acute kidney injury are relatively rare in HF
- They are probably associated with Combination of diuretic therapy with other potentially *nephrotoxic* drugs
 - Antibiotics (gentamicin and trimethoprim)
 - Contrast media
 - ACEIs, ARBs
 - NSAIDs

Diuretics and CKD

- Diuretics, especially thiazides, but also loop diuretics, may be less effective in patients with a very low GFR, and if used, should be dosed appropriately : higher doses to achieve similar effects

Drugs and CKD

- Renally excreted drugs (e.g. *digoxin, insulin* and *low molecular weight heparin*) may accumulate in patients with renal impairment and may need dose adjustment if renal function deteriorates.

Contrast-induced Nephropathy

- Patients with HF and coronary or peripheral vascular disease are at risk of acute renal dysfunction when they undergo contrast media enhanced angiography {*contrast-induced acute kidney injury*}

Prostatic Obstruction

- Prostatic obstruction is common in older men and can interfere with renal function; it should therefore be ruled out in men with HF with deteriorating renal function.
- α -adrenoceptor blockers cause hypotension and sodium and water retention, and may not be safe in HFrEF
- 5- α -reductase inhibitors are generally preferred in the medical treatment of prostatic obstruction in patients with HF.

THANK YOU