Implementing a programme of RAASi optimisation for patients with CKD and HF; empowering the triangle of nephrologist, cardiologist and primary care

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Diabetes, cardiac and renal disease are major public health problems exhibiting a rising prevalence in the global population. They interact in a complex and interdependent manner. Heart failure (HF) is often associated with declining renal function, while the loss of glomerular filtration rate (GFR) independently predicts cardiovascular mortality and precipitates the overall progression of HF. Diabetic kidney disease (DKD) is one of the most common complications of type 2 diabetes mellitus (T2DM) and the most common cause of end-stage kidney disease worldwide. The share of patients with CKD stages 3 to 5 is expected to increase by 50% in the overall CKD population by the year 2025. Diabetes is also associated with a 2.5-fold increase in the risk of developing HF, while a significant share of patients with HF and diabetes has worse cardiac prognoses than non-diabetic patients with HF. Despite current therapies and notable treatment advances, these conditions continue to share a progressive course and unfavourable prognosis and their coexistence worsens the overall outcomes.

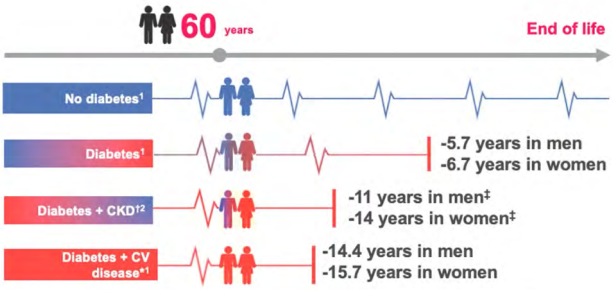

Figure 1.
CKD, diabetes and heart disease as the leading causes of premature death

Preventing and managing CKD in patients with diabetes is a key target of their overall management. The clinical diagnosis of CKD related to diabetes is established based on a reduction in eGFR to <60 ml/min/1.73 m2, a persistently elevated urinary albumin excretion or both. The preferred method to estimate urinary albumin excretion is to measure the concentration of albumin in first-morning urine using a sensitive assay and adjust the result for the urinary creatinine concentration thus acquiring the albumin to creatinine ratio (ACR). Due to substantial daily variations in urinary albumin excretion, any abnormal results should always be confirmed by additional sampling over a 3 to 6 months period. Screening for albuminuria and renal impairment identifies most patients who are at risk of CKD and should therefore be actively conducted in populations at risk. Nevertheless, recent data show that such testing is insufficiently performed in clinical practice, thus contributing to late diagnosis and treatment initiation. In the area of heart disease, important gains have been made in improving outcomes and patient quality of life. The death rate from heart and circulatory diseases has declined by more than three-quarters in the last sixty years in the United Kingdom. The major targets of preventive and interventional measures related to cardiac disease are smoking habits, air pollution, metabolic disturbances, diet and physical activity. Sadly, impaired kidney function remains under-addressed as a contributing factor, even though it is an essential and modifiable element.

The integrated approach to renal, cardiac and diabetic disease

Several intervention strategies, both well-established and recently introduced, exhibit simultaneous metabolic and cardiorenal effects. Renin-angiotensin-aldosterone system (RAAS) inhibition has been the cornerstone of treatment for patients with HF, DKD and CKD for nearly thirty

years. Nevertheless, it appears that, despite their well-established beneficial effects, RAAS inhibitors are underprescribed, even among patients with strong class-specific recommendations, such as those with albuminuria. The major concern with prescribing RAAS inhibitors is the risk of hyperkalemia, especially in patients with advanced CKD. Still, the possibility of hyperkalemia should not be perceived as a reason to avoid such potent and beneficial therapeutics as it is a foreseeable and treatable side effect. According to the Delphi consensus regarding best practice recommendations for hyperkalaemia across the cardiorenal spectrum, RAAS inhibitors should not be discontinued or mitigated due to hyperkalemia unless alternative measures for elevated potassium levels had been optimized.

In the last decade, and especially since 2015, the landscape has been changing at an incredibly fast pace. Numerouslargeclinica ltrialsinvestigatedtheeffectsofsodium-glucose transporter 2 (SGLT2) inhibitors, glucagon-like peptide 1 (GLP1) agonists, non-steroidal mineralocorticoid receptor antagonists (MRAs)and endothelin antagonists among patients with diabetes, HD and CKD reporting very promising results. These observations led to adjustments in therapeutical approaches and guidelines. The „four pillars" of optimal HF management now are RAAS or neprilysin inhibitors, beta-blockers, MRAs and SGLT2 inhibitors. Similarly, SGLT2 inhibitors, GLP-1 agonists and MRAs have been introduced in the 2022 KDIGO Clinical Practice Guideline for Diabetes Management in CKD. The safe application of novel MRAs in advanced stages of CKD or HF is aided by novel potassium-binding agents such as patiromer and sodium zirconium cyclosilicate.

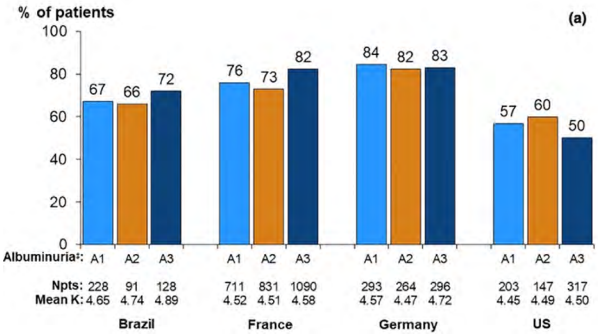

Figure 2.
. RAASi prescription by the level of albuminuria according to KDIGO 2012 guidelines

The rising prevalence of individuals with cardiorenal and diabetic diseases elicits the promotion of collaborative care and alignment of treatment approaches to provide optimal patient management. Persons with multiple comorbidities should be managed by multidisciplinary teams, involving not only physicians but also pharmacists, nurses, dietitians and caregivers. Collaboration among different clinical specialities can now be aided by modern technologies that help overcome geographic or logistic barriers to face-to-face cooperation.

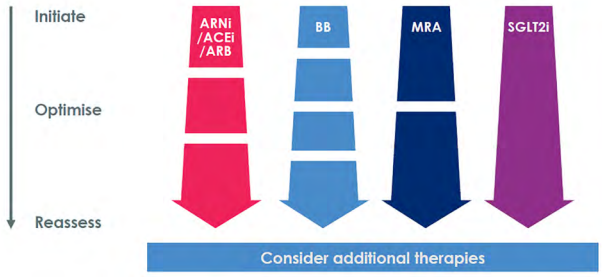

Figure 3.
The four pillars of optimal HF management

Writen by: Jasna Trbojevic-Stankovic
The speaker reviewed and approved the content.

KEY POINTS

1. Diabetic, cardiac and renal disease share certain pathophysiological mechanisms, progressive course and a rising incidence.
2. Several therapeutic interventions have simultaneous metabolic and cardiorenal effects.
3. RAAS inhibition has long been the cornerstone of treatment for HF, DKD and CKD. Nevertheless, despite their known beneficial effects, they are underprescribed due to the fear of hyperkalemia.
4. SGLT2 inhibitors, GLP1 agonists and non-steroidal MRAs are promising novel agents which paved their way into the new guidelines for the treatment of HF, DKD and CKD.
5. Optimal approach to persons with multiple comorbidities should rely on a multidisciplinary approach and collaborative care involving physicians, specialized nurses, dietitians and pharmacists.

Further readings

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