

would have asked me 'is there any position that you coveted during your life then this would be it', he said. 'I had applied for a university hospital position in Germany but withdrew when this came because this is a position that I always thought I would really want. Sir Magdi belongs to a generation where there were many great achievers but undoubtedly he is one that achieved an enormous amount and I am proud that I succeeded him'.



Sir Magdi Yacoub operating

A member of the European Society of Cardio-Thoracic Surgery; American Society of Transplantation; German Society of Cardiology; German Society of Transplantation; German Society for Thoracic and Cardiovascular Surgery. Married to his second wife, he has three children, and away from medicine enjoys cooking as his main hobby. He is also the founder and president of 'HeartHelp', a charitable non-government organization which provides cardiac surgery for adults in developing countries in Africa. While the charity has been less active since he left Hannover, he is now formulating plans to revive its activities.

As for the future, Mr Simon, 50, has a strong vision for the surgical programme at the Royal Brompton and Harefield, and explained: 'My plan was to be able to offer high-end medicine, be competitive with

leading institutions, and be one of those institutions at the forefront of getting new valuable technology and technique and I think we are making good progress. The numbers have increase significantly; when I came here there were seven heart transplants a year—this financial year we might transplant between 30 and 40 and lung transplants are perhaps 70, up from 25. We do by far the largest number of VADs in the UK and have the broadest portfolio when it comes to different devices and have the only existing bridge to transplant ECMO programme'.

However, he also has concerns about the future with the uncertainty being created in the NHS by the UK decision to leave the European Union and what he believes is a lack of vision within the health service in terms of investment for the use of advances such as the 'heart-in-the-box' technology to revive a heart for transplant after it has stopped beating within its original body.

Mr Simon believes the planned collaboration between Royal Brompton & Harefield NHS Foundation Trust and King's Health Partners will offer further new options and opportunities. The aim is to bring together the specialist skills and expertise from the organizations involved to create a centre of excellence, with a new purpose-built clinical academic facility on the St Thomas' Hospital and Evelina London Children's Hospital site.

Mr Simon said: 'If we are successful with our planned partnership with Kings, and if the Royal Brompton moves to St Thomas and expands the campus here, I think we have very good long-term options for end-stage heart and lung failure. My vision is that we have a more holistic concept of heart and lung failure, with integrated pathways and a big programme in heart and lung failure running here and at Harefield'.



Conflict of interest: none declared.

doi:10.1093/eurheartj/ehy083

The new SFB/TRR219 Research Centre

A new Transregional Collaborative Research Center of the German Research Foundation (DFG) has been created to address reno-cardiovascular interactions underlying the increased cardiovascular risk in patients with chronic kidney disease to develop novel treatment strategies to reduce cardiovascular morbidity and mortality in these high-risk patients

Chronic kidney disease (CKD) has developed into a serious global health problem. The prevalence of CKD is reported to be around 11% in high-income countries and the World Health Organization (WHO) estimated that around 1.5% of deaths worldwide were caused by CKD in 2012.^{1,2} Projections from the WHO predict that by 2030 CKD-related deaths will further increase by 15% compared to 2012.^{1,2} CKD

patients have a five to ten fold higher risk of death than to progress to the end-stage of renal disease (ESRD = CKD Stage 5).¹⁻⁴

Cardiovascular disease is the most common cause of death in patients with CKD Stages 3-5.⁵ Cardiovascular mortality significantly increases with severity of renal dysfunction⁶ and accounts for ~40-50% of all deaths in patients with CKD stages 4-5 compared to 26% in humans

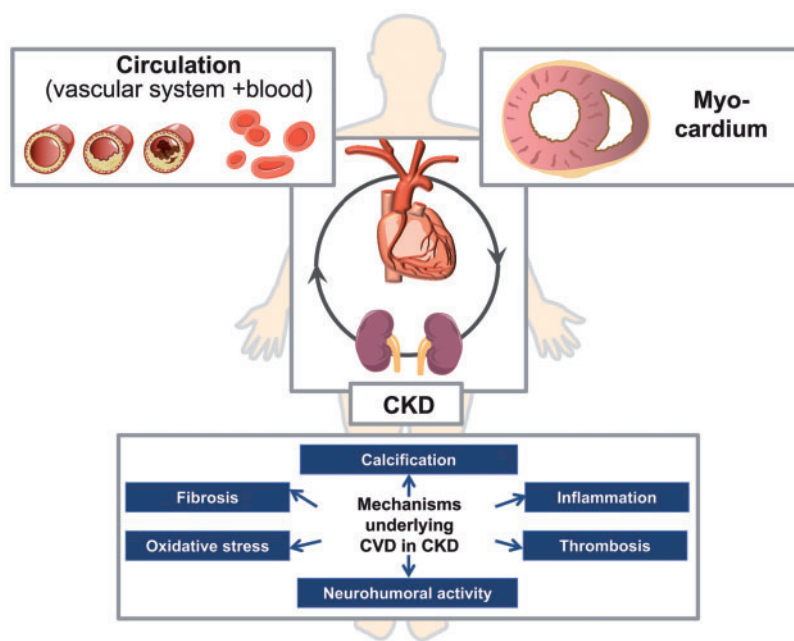


Figure 1 Focus of the SFB/TRR219 consortium. Alterations in the circulation as well as in the myocardium crucially contribute to the increased cardiovascular risk in patients with chronic kidney disease. The SFB/TRR219 consortium seeks understanding of the mechanisms that underlie pathological effects of chronic kidney disease on the circulation and the myocardium causing chronic kidney disease-related cardiovascular disease.

with normal kidney function^{1,5} CKD-related cardiovascular death is mostly caused by ischaemic heart disease, accounting for over 50% of cardiovascular deaths in patients with CKD Stages 2–4, independent from the glomerular filtration rate (GFR).⁵ Sudden cardiac death becomes increases more as CKD progresses and is estimated to cause 60% of all cardiac deaths in dialysis patients.⁷ This suggests that at lower GFR CKD-specific pathological mechanisms significantly gain in importance. In addition, part of the cardiovascular deaths in CKD patients are due to cerebrovascular disease, valvular heart disease and arrhythmias.⁵

The classic cardiovascular risk factors such as smoking and overweight have less impact on cardiovascular disease in CKD patients compared to the general population.^{8,9} In more than 70 studies on non-dialyzed subjects with CKD, control of hypertension, diabetes mellitus and dyslipidaemia did not neutralize the impact of CKD on cardiovascular risk.¹⁰ These findings provide evidence that in addition to traditional risk factors, novel and hitherto unknown mechanisms may be important in driving cardiovascular disease in CKD^{9,11,12} and that CKD *per se* represents an independent risk factor for cardiovascular events,¹³ independent of geography or ethnicity.¹⁴ This may explain why traditional strategies to improve cardiovascular outcomes have largely failed in CKD.^{11,15,16}

Reducing cardiovascular mortality in CKD patients through novel therapeutic strategies first requires the identification and understanding of CKD-specific pathological mechanisms.^{17–19} To achieve this goal, two German universities, the RWTH University of Aachen and the Saarland University, have initiated the Transregional Collaborative Research Center 219 (SFB/TRR219) ‘Mechanisms of Cardiovascular Complications in Chronic Kidney Disease’. This consortium aims to analyse the multi-facet mechanisms of CKD-related cardiovascular disease in experimental and clinical studies, with a total of 17 interdisciplinary research teams from

cardiology, nephrology, biophysics and molecular biology joining forces. The consortium is funded by the German Research Foundation (DFG).

According to the current understanding, CKD induces characteristic structural and functional alterations in the blood, vasculature, and the heart, crucially contributing to the increased cardiovascular risk in these patients.^{20,21} Accordingly, the circulation and the myocardium in CKD will be the main research focus points of the SFB/TRR219 consortium (Figure 1). As CKD shows features of premature aging of the cardiovascular system, the findings of the consortium might be of relevance for the understanding of aging processes in the general population as well.²²

Several mediators that affect renal, vascular, and myocardial pathology have already been identified.^{17,20} However, their functions regarding the complex interaction between kidney, vasculature, and heart are still poorly understood. The SFB/TRR219 consortium will focus on major pathological processes involved, i.e. calcification, inflammation, oxidative stress, fibrosis, thrombosis, and neurohumoral dysregulation (Figure 1). The SFB/TRR219 will also strive to identify novel molecular mediators of cardiovascular disease in CKD.

Translational approaches will be applied by developing novel mediators to biomarkers, by analysing the effect of novel interventions on CKD-related cardiovascular pathology, as well as by extending previously developed diagnostic tests for cardiovascular pathology²³ to CKD and leading their application to clinical practice. In addition to blood and the vasculature, the SFB/TRR219 consortium will mainly focus on ischaemic heart disease (including myocardial infarction), chronic heart failure and arrhythmias, as they account for more than 70% of cardiovascular deaths and the high morbidity in CKD.⁵ This will also include the analysis of uraemic cardiomyopathy, a suspected specific cause of heart failure in CKD.²⁰

The SFB/TRR219 consortium integrates three central platforms. First, a centralized hub for analysing and integrating all clinical studies and experimental data using bioinformatics and statistical methods will facilitate the implementation of experimental concepts into clinical medicine. A second platform will provide standardized and harmonized animal models and histopathological analyses of cardiovascular and renal pathology to the consortium to facilitate comparability and synergy between all projects. A third project combines chromatography, mass spectrometry, and matrix-assisted laser/desorption ionization (MALDI) imaging to enable all consortium partners to gain deep insights into the pathology of CKD-associated cardiovascular disease.

In addition, the SFB/TRR219 consortium has integrated a PhD graduate school to guide PhD students to become the next generation of innovative, independent and translational cross-disciplinary researchers exploiting multiple facets of cardiovascular disease in CKD.

In summary, the SFB/TRR219 is a German research consortium that strives to understand the reno-cardiovascular interactions underlying the enhanced cardiovascular risk in patients with CKD. The aim is to trigger the development of novel treatment strategies to reduce cardiovascular morbidity and mortality in these high-risk patients.

For further information, contact jjankowski@ukaachen.de or visit our website www.sfb-trr219.de.

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Acknowledgements

The authors thank all members, reviewers, and collaborators of the SFB/TRR219 for their excellent work, enthusiasm, and support in the initiation of this consortium.

Funding

The German Research Foundation, the RWTH University of Aachen and the Saarland University, provided financial support for the SFB/TRR219.

Conflict of interest: none declared.

References

References are available as [supplementary material](#) at *European Heart Journal* online.

doi:10.1093/eurheartj/ehy084

The City of Ferrara prevention series

Ferrara V

City of Prevention, the Project II: involving local and national media for maximal distribution of message

Awareness of the project 'Ferrara, City of Prevention' and of all its opportunities, especially at the beginning of the campaign is a major goal. In the previous report,¹ we illustrated how we made the logo known throughout the city. Alone, this is insufficient of course. It is necessary to involve and rely on the local and national media to promote the programme. This is almost a job in itself and requires an *ad hoc* office to assist with coverage, particularly at the national level.

Television channels and newspapers

We have been fortunate to find a small but national television station (TVT) that is interested in our project and will provide us with 1-h air time on a Sunday morning free of charge. The weekly series will be dedicated to prevention using 'Ferrara, City of Prevention' as an example. Transmitting from 2018, we are currently preparing the different