

Copenhagen, May 22, 2018

## **Type 2 diabetes doubles the cardiovascular risk of patients with chronic kidney disease**

**A pioneering study [1] conducted by Rigshospitalet, University of Copenhagen, will be presented at the ERA-EDTA Congress being held this week in the same city. The study investigates the prevalence of cardiovascular disease in kidney patients in relation to their diabetic status. It was found that diabetes doubles the cardiovascular risk, with even prediabetes being associated with an increased risk: 'We must do all we can to prevent kidney patients from developing diabetes mellitus. In many patients, however, kidney damage is also a consequence of a diabetic illness. The metabolic disorder must be treated as well as possible from the outset, in the case of these patients, in order to reduce the risk of kidney and cardiovascular disease'.**

Worldwide, 10–15% of the population suffers from a chronic kidney disease (CKD) [2, 3]. CKD is associated with a poor prognosis, because the patients have a high risk of suffering cardiovascular events (sudden cardiac death, heart attacks, strokes). As long ago as 20 years, a study showed that the mortality risk of a 30-year-old dialysis patient was approximately the same as that of an 80-year-old person with healthy kidneys [4]. Based on intensive research, there has been substantial improvement in the prognosis for diabetic kidney patients in recent years and decades, but their prognosis is still poor. A Danish study [1] to be presented at this week's ERA-EDTA Congress in Copenhagen addressed the question of which groups of kidney disease patients have a particularly high cardiovascular risk and need intensive therapy and support. It is well known that 'type 2' diabetes is also associated with a significantly higher risk of cardiovascular disease. The obvious conclusion to draw is that the combination of both diseases involves a particularly high rate of cardiovascular events.

The study [1], which was conducted by Rigshospitalet, University of Copenhagen, examined the prevalence of cardiovascular disease among patients with 'non-end-stage CKD stage 1-5', in relation to their diabetic status. Patients were classified into 'no diabetes', 'known type 2 diabetes', 'prediabetes' and 'unknown type 2 diabetes'. A total of 496 CKD patients were enrolled in the study. The participants were interviewed and medically examined. Blood and 24-hour urine samples were analyzed. The diagnosis of type 2 diabetes mellitus was based on hospital data and/or the prescription of anti-diabetic medication (as registered in the

'national electronic prescription system'). A patient was considered to have prediabetes if the criteria for diabetes were not met, but a fasting blood sugar level of 6–6.9 mmol/l was measured; a fasting blood sugar level of 7 mmol/l or higher was defined by the leaders of the study as 'unknown T2DM'. Details of cardiovascular diseases and risk factors were likewise obtained from the electronic patient files.

The findings showed that a diabetic disease has a dramatic effect on cardiovascular risk in CKD patients and constitutes a particularly serious risk factor for cardiovascular disease. The prevalence of cardiovascular events was highest among patients with known type 2 diabetes, i.e. more than one diabetic CKD patient in two had suffered from cardiovascular disease, as compared to only one in four non-diabetic patients. Diabetic CKD patients thus have a cardiovascular risk which is twice as high as that of non-diabetic CKD patients (51.3% vs. 23.1%).

The cardiovascular risk was higher even among patients with prediabetes or 'unknown T2DM' (who still accounted for more than 23% of the study population). Of those patients, one in three were affected by a cardiovascular disease, not just one in four, as was the case with non-diabetic CKD patients.

According to Bo Feldt-Rasmussen, Rigshospitalet, Department of Nephrology, Copenhagen, President of the ERA-EDTA Congress and one of the leaders of the study, 'CKD patients who also have diabetes mellitus are seriously ill, high-risk patients. They have a worse prognosis than many cancer patients. We have to do everything we can to prevent CKD patients from developing diabetes mellitus and to raise kidney patients' awareness of preventive measures. In many cases, however, the kidney damage is a consequence of a diabetic illness. The metabolic disorder must be treated as well as possible from the outset in these patients, in order to reduce the risk of kidney and cardiovascular disease'.

- [1] Rie Louise Dyhr, Mads Hornum, Helene Trankær, Ellen L. Freese, Susanne Bro, Anne-Lise Kamper, Bo Feldt-Rasmussen et al.: DIABETES AND CARDIOVASCULAR DISEASE IN THE COPENHAGEN CHRONIC KIDNEY DISEASE COHORT. ERA-EDTA Congress 2018, Copenhagen. Abstract SP427
- [2] Eckardt KU, Coresh J, Devuyst O et al.: Evolving importance of kidney disease: from subspecialty to global health burden. *Lancet* 2013; 382: 158–69
- [3] GBD 2013: Mortality and Cause of Death Collaborators: Global, regional, and national age-sex specific all-cause and cause-specific mortality for 240 causes of death, 1990–2013: a systematic analysis for the Global Burden of Disease Study 2013. *Lancet* 2015; 385: 117–71
- [4] Foley RN, Parfrey PS, Sarnak MJ. Clinical Epidemiology of Cardiovascular Disease in Chronic Renal Disease. *Am J Kidney Dis* 1998; 32 (suppl 3): 112–119

### **About ERA-EDTA**

With more than 7,500 members, the ERA-EDTA ("European Renal Association – European Dialysis and Transplant Association") is one of the biggest nephrology associations worldwide and one of the most important and prestigious European Medical Associations. It supports basic and clinical research in the fields of clinical nephrology, dialysis, renal transplantation and related subjects. It also supports a number of studies as well as research groups and has founded a special "Fellowship Programme" for young investigators as well as grant programmes. In order to involve young nephrologists in all its activities, ERA-EDTA has created the "Young Nephrologists' Platform" (YNP), a very active committee whose board includes members who are 40 years old or younger. In addition, it has established various working groups to promote the collaboration of nephrologists with other medical disciplines (e.g. cardiology, immunology). Furthermore, a "European Renal Best Practice" (ERBP) advisory board was established by the ERA-EDTA to draw up and publish guidelines and position statements. Another important goal of the ERA-EDTA is education: The series of CME courses combined with the annual congress offer an attractive scientific programme to cover the need for continuous medical education for doctors working in the fields of nephrology, dialysis and transplantation. The association's journals, NDT (Nephrology, Dialysis, Transplantation) and CKJ (Clinical Kidney Journal), are currently the leading nephrology journals in Europe; furthermore NDT-Educational is the online educational journal of the society, with free access for all users, as well as being a very important and useful feature of the NDT-Educational "Literature Review". The ERA-EDTA Registry is a large epidemiologic database comparing countries by assessing nephrology practices throughout Europe. ENP, the European Nephrology Portal, is the latest new initiative of ERA-EDTA, where all those interested in the activities of the Society can find everything that is happening, all in one place. Finally, ERA-EDTA is a member of the European Kidney Health Alliance (EKHA), a consortium of patients, nurses and foundations relating to renal issues that actively interacts with the European Parliament. For more information, please visit [www.era-edta.org](http://www.era-edta.org)