

SWIDINEP: Swiss Diabetes in Nephrology study

Epidemiology and risk factors of diabetic kidney disease in ambulatory care diabetes in Nephrology study

Background: Diabetic kidney disease (DKD) is a progressive disease with multiple co-morbidities, major complications and increased health costs. It affects 30-40% of diabetic patients. DKD prevalence is expected to rise due to the aging population and to the increased incidence in type 2 diabetes. DKD is associated with a very high cardiovascular risk profile and is the most common cause of end-stage renal disease in developed countries. Since the nineties, there has been a substantial improvement in the outcome of DKD patients thanks to improved glycemic control and renin-angiotensin blockade. However, since then, no new therapy has improved the decline in renal function which remains inexorable in some patients who progress to end stage renal disease. The number of diabetic subjects on dialysis has nearly tripled in the Canton de Vaud in 8 years. Switzerland is lacking extensive information on the epidemiology of diabetic kidney disease. In Lausanne, some data has been gathered these last years. The ColaUS Cohort study in Lausanne identified 388 diabetic adult subjects of whom around 30% had stage 1-5 DKD. Significant DKD (eGFR<60ml/min) was identified among respectively 9.4%, 22.4% and 81% of diabetic subjects in the ColaUS study, attending a diabetes or a nephrology outpatient clinic in Lausanne.

Aim: The goal of this cohort is to recruit and follow 250 individuals with stage 1-5 DKD for 5 years, and identify their phenotype, genotype and biochemical biomarkers involved in their renal function decline. This study will also identify those at high risk of accelerated renal function loss and implement personalized therapy to slow the renal function decline. This cohort will extend the large experience of cohort studies in Lausanne to diabetic subjects with kidney disease.

Methods: Patient recruitment from the ambulatory diabetes and nephrology clinics has started in 2013. Recruitment may be extended to practitioners outside the university outpatient clinics in Vaud and to Geneva. In addition to the demographics, history and physical examination, they will undergo renal ultrasound and pulse wave velocity measurements of carotid, radial and femoral arteries, measurements of the intima media thickness of the carotid artery and 24h blood pressure measurements. Serum, plasma, and urine samples as well as whole blood (buffy coat for DNA extraction and genotyping) is stored at -80°C in a local biobank according to the latest guidelines of the Académie Suisse des Sciences Médicales (ASSM). Similar characterizations and measurements will be performed 2y and 5y after baseline.

Importance of this work to endocrinology or diabetes: Diabetic kidney disease is poorly investigated in Switzerland in spite that it is nowadays the first cause of end stage renal disease. Far too often, those starting dialysis were poorly followed up, or non adherent to treatment. It is therefore of utmost importance to identify patients at risk of an accelerated decline in an early stage in order to implement multidisciplinary strategies to slow the decline in renal function and the progression towards end stage renal disease. The ongoing cohort is a powerful tool to identify new biological, genetic, ethnic, societal and structural risk factors for kidney function decline.