

Policy Brief

Situation analysis of incidence of chronic kidney diseases and key risk factors of its development and progression in the Kyrgyz Republic

Background

The chronic kidney diseases (CKD) represent a significant concern of all chronic non-communicable diseases, due to high prevalence, severe effects on quality of life, high mortality rates, and the need to use costly substitution therapy for its end-stage - hemodialysis and kidney transplantation.

In recent years, the Kyrgyz Republic has witnessed a sharp increase in number of CKD patients. The increase has been observed in overall number of CKD patients, in number of end-stage disease patients enrolled to the public funded hemodialysis program, and in number of patients with kidney transplant operations, who require lifelong provision with essential medicines.

Currently, in the Kyrgyz Republic the public healthcare organizations of national and oblast levels have been operating eight hemodialysis units for treatment of CKD patients. These units operate in 3 shifts; however, current capacities cannot provide the hemodialysis services to all patients in need.

The annually growing number of CKD patients, complexity and high cost of the treatment and maintenance of hemodialysis units all suggest taking preventive measures to reduce the CKD incidence.

This study focused on driving causes of the morbidity growth, which should determine the preventive measures to reduce CKD morbidity and mortality.

Study objectives

To review the causes of growing CKD incidence and main contributors to the CKD development and

progression, disability and early mortality from CKD complications.

Methodology

The study analyzed data on CKD patients who sought care, as retrieved from the 'Unified National Registry' (UNR). To this end, an Excel based electronic database of CKD patients has been created, using records in hard paper registers.

Personal data of all CKD patients registered from 17.07.2008 (registry start date) to 10.24.15 were entered to the UNR. All re-registration cases of same patients during readmissions were excluded from the UNR database.

The UNR database enabled identifying the key nosology forms contributing to CKD development and the main contributors to CKD progression over the course of 3 diseases: cardiovascular diseases (CVD), diabetes mellitus (DM) and primary glomerular kidney disease - glomerulonephritis (GN).

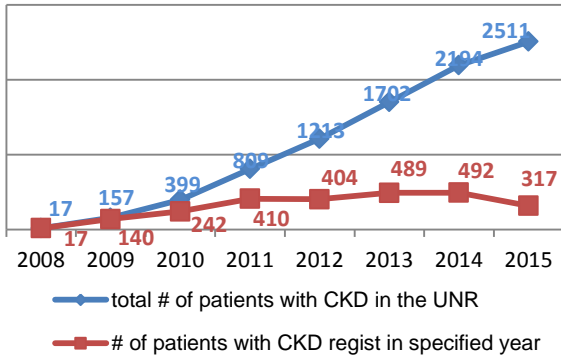
One caveat of this methodology is that the UNR registers only those who sought care with CKD stage III-V, while patients with CKD stage I-II and under 18 y.o. are not registered. This prevents evaluating the real prevalence of CKD in Kyrgyzstan, although allowing for a guiding analysis of causes of CKD in adults.

In addition, medical records of patients and statistic reports of healthcare organizations were retrospectively reviewed, and semi-structured qualitative interviews were conducted with healthcare professionals in nephrology.

Key findings

The prevalence findings were based on records in the UNR. The total number of CKD patients who sought medical care in healthcare organizations was 2,511 (Figure 1).

Figure 1. Number of patients with stage III-V CKD as registered in the UNR



The annually growing number of registered new CKD cases in the UNR is also pushing the number of patients on dialysis, despite the fact that the number of post-transplantation patients has increased. As of December 1, 2015, only 349 patients were receiving public funded hemodialysis in public healthcare organizations, 200 patients were receiving public funded dialysis in private facilities, and the rest of patients were receiving dialysis at private medical centers at their own expense, with prices there ranging from 5,200 to 6,000 Kyrgyz Som per session.

It is worth noting that over 1,500 patients registered in EPP were in pre-dialysis stage of CKD.

The analysis of data of CKD patients as registered by nosology forms found that the primary glomerular disease represented a causing factor in 45.2% of the total registered patients.

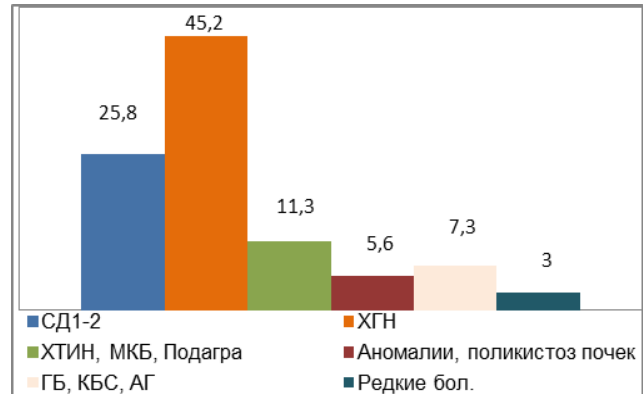
Complications of type 1 and 2 diabetes represented the second leading contributor to development of CKD, with 25.8% of cases, a quarter of type 2 diabetes patients.

The primary tubulointerstitial nephritis (TIN) and the tubulointerstitial nephritis secondary to urinary infections and abnormal metabolic processes with renal dysfunction (nephrolithiasis, gout nephropathy) were found to result in CKD in 11.3% of patients.

Cardiovascular disease (hypertension, coronary heart disease, atherosclerotic cardiosclerosis) were found main causes of CKD in 7.3% of total number of registered patients.

International research on diseases contributing to CKD and TIN suggests the diabetic nephropathy (DN) is the most common cause of CKD in the world, with cardiovascular diseases being the second common cause of CKD, secondary tubulointerstitial disease - the third one, and chronic glomerulonephritis - the fourth cause to CKD¹.

Figure 2. Main nosological forms causing chronic renal failure, %



Conclusions

- A distinctive feature of CKD incidence in the Kyrgyz Republic, as found in the UNR records, was the prevalence of patients with CKD as a consequence of chronic glomerulonephritis - 45.2%. Diabetes mellitus of type 1 and 2 was responsible for 25.8% of CKD cases, and cardiovascular system diseases (hypertension, heart failure, atherosclerosis, etc.) caused 7.3% of CKD cases.
- Given that in Kyrgyzstan the diagnosis of 'Glomerulonephritis' is made empirically, without confirmation with use of relevant diagnostic studies (kidney biopsy), the true incidence of chronic glomerulonephritis might be different. In this regard, there is a need to thoroughly study the approaches to and methods of diagnostics.

¹Kidney Disease: Improving Global Outcomes (KDIGO) CKD Work Group. KDIGO 2012.Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease. Kidney international, Suppl.2013; 3: 1–150

- High contribution of chronic glomerulonephritis to CKD seems to be explained by lack of timely treatment of infections (carious teeth, chronic tonsillitis, otitis, sinusitis, viral infections) in primary healthcare. Family doctors are not involved in the detection and management of patients with urinary tract infections. This is exacerbated by lack of clinical guidelines and protocols for diagnosis, treatment, and prevention of glomerulonephritis at the primary healthcare level.
- UNR mostly registers patients with CKD at irreversible stages (IV - clinical and V - terminal stage of chronic renal failure). There is a growth in number of CKD patients among people at active working age - from 30 to 65 y.o. This suggests late diagnostics of CKD, which is likely associated to lack of awareness among both patients and inadequate activities in PHC.
- CVDs are part of priority programs in implementation of healthcare reform in the Kyrgyz Republic. A number of measures have been taken to control these diseases. Clinical guidelines and protocols for hypertension diagnosis and treatment were developed and introduced at primary healthcare level. Perhaps, this explains moderate contribution of CVDs to development of CKD relative to other causes.
- Identification of diabetes-related factors of CKD suggests that there is lack of commitment among family medicine practitioners to properly manage diabetes at the primary healthcare level, late diagnosis and poor control of factors of diabetic nephropathy. Family practitioners are not engaged in control of diabetes patients, as these functions are fully assigned to endocrinologists in FMCs. In regions and in FGPs operating in remote areas, the access to endocrinologists is limited. Only nephrologists make the diagnosis and management of diabetic nephropathy, and their availability in regions is also limited. Clinical guidelines and protocols for family

doctors on type 1 diabetes have not been approved, while the clinical guidelines and protocols for type 2 diabetes and diabetic nephropathy have not been introduced in healthcare practices.

- Tests for microalbuminuria and glycated hemoglobin, which can identify diabetic nephropathy in early stages and trigger timely prevention of CKD (normally should be compulsory once a year for diabetic patients), are not conducted in FMCs and FGPs, particularly in regions, as these tests are not available.

Recommendations

- Run awareness building activities at PHC on CKD risk factors (through media, trainings, engage patients associations, Health Promotion Units, distributing notes to patients, and others.).
- To prevent or slow down the progression of CKD through early and effective treatment of patients with diabetes, hypertension, cardiovascular diseases, it is imperative to take a number of preventive measures at PHC level, such as assessment of cardiovascular risks and co-morbidities, monitoring of laboratory tests, regular testing for CKD.
- At primary healthcare, develop and implement clinical guidelines and protocols on management of patients with type 1 diabetes; revise clinical guidelines for management of type 2 diabetes with emphasis on early diagnosis and treatment of diabetic nephropathy and risk factors of CKD development and progression.
- Develop clinical guidelines and protocols on treatment and diagnosis of bladder infections, chronic glomerulonephritis, with emphasis on improving early detection, treatment, and self-management of CKD.