Integral Assessment Of Risk Factors Affecting The Development Of Chronic Kidney Disease And Optimization Of The Way Of Prevention

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ABSTRACT

Everywhere today, chronic kidney disease (CKD) is a general medical problem with profound socio-medical and economic consequences associated with its widespread prevalence among the population, disability, mortality due to the development of the terminal stage of the disease. The purpose of this stage of the work was to identify and assess the risk factors associated with albuminuria affecting the development of CKD. Based on these data, a mathematical model has been developed that allows calculating the risk index (RI) of CKD development.

KEYWORDS

Chronic kidney disease, forecast, microalbuminuria, glomerular filtration rate, BMI.

INTRODUCTION

Numerous clinical and epidemiological studies conducted in the world in recent years show that the prevalence of CKD is high and is not inferior to the prevalence of such socially significant diseases as diabetes mellitus, hypertension, heart failure; CKD is noted in 12-28% of the population in countries with different ethnic composition and economic

development, signs of chronic kidney disease stages C3-C5 among residents is 5.9-8.1%, in Japan up to 18.7%, in the USA this indicator is 15.7% [4, 6].

On a global scale, a number of scientific studies are currently being carried out to achieve high reliability and efficiency in improving the early diagnosis, treatment and prevention of CKD. The development of a system of renal replacement therapy (RRT) in the provision of nephrological care to the population is not able to solve the problem of treating patients and improving their quality of life. An initial attempt to address these issues was initiated at the beginning of the 21st century by the US National Kidney Foundation (NKF) [2, 7]. Numerous studies have been carried out on the diagnosis and prognosis of the development of kidney diseases, the concept of CKD has been developed. Experts from the European Renal Association, the European Dialysis and Transplantation Association (ERA-EDTA) and KDIGO (Kidney Disease: Improving Global Outcomes) took part in the further development of this model [1, 3]. Also, research is carried out on the features of early diagnosis and prevention of CKD, the importance of risk factors for the development and progression of the disease, the development of early biomarkers for diagnosis and optimization of preventive measures to prolong the pre-dialysis period and improve the quality of life of patients [5].

This scientific work will reduce the complications of the disease in the population by increasing the level of modern medical care in the early diagnosis and prevention of chronic kidney disease and improving the use of modern technologies for quality medical care.

MATERIALS AND METHODS

The purpose of this stage of the work was to identify and assess the risk factors associated with albuminuria affecting the development of CKD.

When conducting research at this stage of work, it was taken into account that the effect of risk factors on the human body is individual and the likelihood of developing CKD depends on the compensatory and adaptive capabilities of this organism. The intensity of risk factors in prenosological diagnostics was investigated in relation to various functional states of the examined.

RESULTS AND DISCUSSION

All patients were divided into 2 groups based on the indicators of the functional state of the kidneys.

Group 1 - the main group of the surveyed, in which the diagnosis of CKD was established. GFR <90ml / min / 1.73 m2. (n = 91).

Group 2 - risk group. The surveyed included in this group had the influence of risk factors, microalbuminuria was determined above 30 mg / l, but the filtration function of the kidneys was preserved, GFR ≥90 ml / min / 1.73 m2 (n = 226).

Based on the interpretation of the data obtained, a methodological approach was used by a number of researchers who applied it to assess various factors. In this case, 21 factors were selected for analysis, which occupied a certain place in the onset and development of CKD.

Based on these data, a mathematical model has been developed that allows calculating the risk index (RI) of CKD development.

Taking into account the natural division of the studied, according to the studied risk factors, we calculated the risk ranges. For this, the weight range of risk was divided into three sub-ranges and the boundaries were determined that separate the group of patients at risk of development. (Table 1).

Table 1

Assessment of the risk index for developing CKD (in points)

Risk index	Risk limits	Risk group
Moderate	5,99-4,1	"Favorable forecast"
Middle	7,89-6,0	"Attention"
High	7,9-9,6	"Unfavorable prognosis"

It was found that (patients with a moderate index of CKD development were 28.7 ± 4.53% (n = 65), with an average risk of 46.5 ± 4.98% (n = 105) and a high risk of 24.3 ± 4 , 28% (n = 55).

The next stage of our research was to optimize the tactics of early detection and ways to prevent the progression of CKD.

The peculiarities of our research were that we combined screening with interviewing the population of rural areas. Considering that the questions in the questionnaire were set as close as possible to the living conditions of rural areas, then as a result of the research, two issues were practically resolved: optimization of tactics for early detection of CKD and identification of the main risk factors for the development of CKD in people permanently living in rural areas.

Timely measures of primary and secondary prevention of CKD in primary health care in rural areas are reliable and effective measures to reduce the incidence and improve the quality of life of patients with CKD.

Based on the studies carried out, we have developed and proposed for practical health care the following stages of primary and secondary prevention of CKD:

Stages of primary prevention of CKD development among the rural population:

- Conducting a screening survey of the rural adult population to identify risk factors and determine risk groups for CKD, including age characteristics;
- Inform patients or identified persons permanently residing in rural areas who were included in the risk group for developing CKD about impaired renal function and about the risk factors for developing CKD in them;
- Creation of an information sheet in outpatient charts, which contains complete information on non-traditional risk factors for the development and progression of CKD (overweight, abdominal obesity index, bad habits, frequently used medications, the presence of chronic foci of infection, diseases of direct relatives) and systematically (every 3

months) will update this data by the general practitioner of the given area to determine the effectiveness of the preventive and / or therapeutic measures taken;

- Taking into account the established diagnostic value of microalbuminuria for early detection of the development and progression of CKD, it is advisable to determine this parameter for the diagnosis of CKD once a year in persons included in the risk group during screening on an outpatient basis.

Considering the difficulties and inexpediency of continuous screening of the population for the detection of CKD, as well as the high cost and laboriousness of screening and laboratory methods of research when conducting mass surveys among the rural population, it is recommended to limit the questioning (interviewing) among the adult population of rural areas to identify predictively significant risk factors for CKD by primary health care workers, researchers and volunteers with medical degrees. This gives the following advantages: firstly, improving medical education and sanitary culture of the population, and secondly promoting a healthy lifestyle among rural residents.

- Stages of secondary prevention of the development and progression of CKD:
- Creation of an electronic register of rural population included in the CKD development groups during screening studies;
- Creation of a school of nephrological patients with a specific training program for rural population groups with a high risk of developing and progression of CKD, who are diagnosed with CKD above grade 3B. Rural residents included in the risk group acquire knowledge about dietary

characteristics, rules for taking medications, lifestyle, receiving timely therapy to maintain and overcome the early stages of CKD, legal aspects of receiving treatment, including inpatient treatment;

- Conducting repeated blood and urine tests in these persons, with the determination of creatinine and urea, calculation of GFR, microalbumin in urine in women who suffer nephropathy and hypertension during pregnancy once a year;
- Expedient planning of consultations of specialists - nephrologists 1 or 2 times a year for the rural contingent included in the risk group for the timely and effective detection and treatment of CKD in the early stages.

CONCLUSIONS

Thus, by optimizing the methods of preventing the development and progression of CKD in primary health care, it is possible to reduce the degree of complications of the disease and improve the quality of life of patients.

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