



MODERN PREDICTORS FOR EARLY DIAGNOSIS OF CHRONIC KIDNEY DISEASE IN OUTPATIENT CONDITIONS

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✓ *Resume*

Currently, the problem of chronic kidney disease in the world is global in nature and the problem of screening for chronic kidney disease is very serious. Its solution is related to the implementation of extensive preventive measures, and the effective use of methods for early diagnosis of CKD in primary health care. The purpose of this survey is to study the diagnostic value of microalbuminuria as a predictor of early diagnosis of chronic kidney disease in an outpatient setting.

Keywords: chronic kidney disease, microalbuminuria, early diagnosis

SURUNKALI BUYRAK KASALLIKLARINI AMBULATOR SHAROITDA ERTA TASHXISLASHNING ZAMONAVIY PREDIKTORLARI

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Hozirgi vaqtda butun dunyoda surunkali buyrak kasalligi (CKD) muammosi global bo'lib, surunkali buyrak kasalliklarini skrining muammosi juda jiddiydir. Uning yechimi keng qamrovli profilaktika chora-tadbirlarini amalga oshirish, birlamchi tibbiy-sanitariya yordamida CKDni erta tashxislash usullaridan samarali foydalanish bilan bog'liq. Ilmiy izlanishlrimizning maqsadi ambulator sharoitida surunkali buyrak kasalligini erta tashxislashning laborator ko'rsatgichlari diagnostik qiymatini o'rganishdir.

Kalit so'zlar: surunkali buyrak kasalligi, erta tashxis, ambulatory bosqich

СОВРЕМЕННЫЕ ПРЕДИКТОРЫ РАННЕЙ ДИАГНОСТИКИ ХРОНИЧЕСКОЙ БОЛЕЗНИ ПОЧЕК В АМБУЛАТОРНЫХ УСЛОВИЯХ

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✓ *Резюме*

В настоящее время проблема хронической болезни почек (ХБП) в мире носит глобальный характер и проблема скрининга хронической болезни почек очень серьезна. Ее решение связано проведением широких профилактических мероприятий, и эффективного использования методов ранней диагностики ХБП первичного звена здравоохранения. Цель данного обследования является оценка диагностической значимости микроальбуминурии как предиктором ранней диагностики хронической болезни почек в амбулаторных условиях.

Ключевые слова: хроническая болезнь почек, ранняя диагностика

Relevance

In recent years, the world community has faced a global problem of socio-economic importance not only in the field of medicine, but also for countries - the pandemic of chronic non-communicable diseases among the population and the growing number of deaths and disabilities due to their complications [3,6,9].

In particular, research has shown that the incidence of coronary heart disease, hypertension, atherosclerosis, depression, diabetes, obesity, gastrointestinal ulcers, cancer, and the resulting increase in disability and mortality is high. [5,7]

Tens of thousands of people in different countries have been screened for kidney disease and urine tests show that one in ten of the world's population has some degree of chronic kidney damage. All cases of varying degrees of kidney injury that are not detected and treated in time develop over the years, resulting in patients being forced to resort to dialysis or kidney transplantation [5,6].

The level of health of the population is one of the indicators of economic and social development of the country. At the same time, the prevalence of chronic diseases among the population is of major socio-medical importance.

In the comprehensive action plan to further improve the organization of primary health care in the Republic of Uzbekistan in 2017-2021

- Improving the quality of primary health care, development and widespread introduction of modern methods of prevention, early detection, diagnosis and treatment of chronic diseases. (Resolution: PQ-2857 "On measures to further improve the activities of primary health care facilities in the Republic of Uzbekistan") Provision is the most important priority in the creation of a modern health care system in the Republic.

Nevertheless, early detection of chronic diseases among the population, especially in rural areas, requires a radical improvement in the quality of the health care system.

In our country, there is a lack of research to study the prevalence of CKD among the population, there is a lack of research on early detection of the disease, improvement of measures to prevent its development.

All the above-mentioned researches and developed concepts in the field of health care, developed recommendations, comprehensive examinations to identify risk groups for the development of CKD among the population, to study the level of morbidity in them, to identify the causes. z timely elimination, implementation of effective treatment, aimed at reducing disability

As a result of the analysis, the impact of risk factors leading to the development of CKD among the population of the country is significant. Research has shown that the incidence of hypertension, diabetes and coronary heart disease is much higher in the general population. These indicators are considered a risk factor for CKD, and the lack of a nephrologist's examination in this segment of the population and the lack of recommendations indicate the need for research in this area.

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The aim of the study is to improve the quality of primary care, to develop modern methods of early detection of chronic kidney disease in the population, to identify biomarkers that are important in the diagnosis.

Materials and methods. For the purpose of the study, a survey was conducted among 700 people living in the rural family polyclinic № 60 (Zarangari) in Gijduvan district of Bukhara region and the rural family polyclinic № 2 (Dehoji) in Bukhara district to determine CKD. The surveys were analyzed and 317 respondents (99 men -31.2% and 218 women 68.8%) were included in the risk group for developing CKD. The risk group ranged in age from 16 to 72 years, with an average age of 49.7 years for women and 51.3 years for men. A total of 57 healthy individuals formed the control group. The average age of men was 27.47.4%, women 30-22.6%, and the average age was 42.6%.

In all of them, clinical, laboratory and instrumental diagnostic tests were performed to detect renal pathology.

Public opinion polls. The questionnaire is designed to identify CKD, the conditions that may lead to its development, anamnestic data, age and sex of the patient, body mass index (BMI), blood pressure, the first clinical signs of the disease, the presence of harmful habits consists of 40 questions designed to clarify. The questionnaire helps to identify patients who are at risk for developing CKD in a practically healthy population.

Clinical analysis of blood in the laboratory, blood biochemical analysis of serum ALT (alanine aminotransferase), AST (aspartate aminotransferase), glucose, lipid fractions (cholesterol, triglycerides, low-density lipoproteins), urea, creatinine and filtration rate (kidney rate) indicator was detected.

The amount of microalbumin in the urine and microalbumin in the urine of those involved in the study (n = 317) using test strips (Combin 13, Human GmbH Germany), which are important for early detection of CKD, easy to use in primary care / creatinine ratio was determined.

Excessive excretion of albumin in the urine is a laboratory marker detected in the early stages of renal glomerular injury. A small amount of microalbumin excretion in the urine can also be observed in a physiological state (loaded proteinuria). This is explained by an increase in hemodynamics in the renal glomeruli [James.A Shayman. et al. 1999]. This poses problems in determining the normative and

pathological gradations of microalbuminuria. This problem was discussed at the KDIGO conference in London in 2009 and microalbuminuria (MAU) gradations were identified. There are 5 different levels of detection of microalbuminuria in the urine A0.-MAU <10mg / l, A1-MAU = 10-29mg / l, A2 - MAU = 30-299mg / l, A3 -MAU = 300-1999mg / l, A4 - MAU \geq 2000mg / l.

Microalbuminuria can also be detected in some patients with no decrease in renal glomerular filtration rate (GFR > 90ml / min / 1.73m²). This is more common when CKD is associated with diabetes [Liam Manns, Nairne Scott-Douglas et al. 2017]. Therefore, in order to maintain the diagnostic efficacy of microalbuminuria, the amount of creatinine excreted in the urine is determined in the test strips Combina 13 and the ratio of albumin / creatinine is calculated. This ratio determines the severity of microalbuminuria. Albumin / creatinine ratios were assessed in the gradations of normal (normal), abnormal-pathological change, and high abnormal-obvious pathological change [5,7]

In all patients, microalbuminuria (MAU) and microalbumin / creatinine ratios, serum urea and creatinine levels, GFR, were analyzed three times at 1-month intervals to confirm CKD.

The research followed the ethical principles set out in the 1964 Helsinki Declaration on the Protection of Human Rights of the World Medical Association (WTA) (last amended in 2008 at the 59th General Assembly of the JTA in Seoul).

Statistical methods. Traditional variational statistical methods were used to statistically process the results obtained. They were performed on a personal computer with a Pentium-4 processor using a special program "Excel" for medical and biological tests. Evidence-based medical principles were used in organizing and conducting the research.

Result and discussion

Based on the results of all studies, 317 patients at risk and 57 healthy people were divided into 3 groups: Based on the results of the analysis, the controlled patients were divided into 2 groups.

Group 1 - patients with advanced CKD - 91 people

Group 2 - 226 patients at risk of developing CKD

Group 3 - control group - 57 people

The incidence of CKD levels in group 1 patients was analyzed for age, sex, and MAU gradation. The main criterion for the diagnosis of CKD is the level of GFR. A GFR <90 ml / min / 1.73 m² indicates an initial degree of renal filtration dysfunction. There are 5 stages of CKD depending on the extent of GFR decrease [9,10].

Detection of GFR is the most necessary parameter for the diagnosis of CKD. An important and reliable way to detect BKF is to determine the amount of creatinine in the blood serum in this biochemical laboratory and calculate the level of glomerular filtration. There are several ways to calculate BKF. In the 1990s, the 4-component MDRD (Modification of Diet in Renal Disease) [7,11] method was widely used by American scientists. However, this method has a number of drawbacks, including the presence of race, gender and age components in the formula, which makes it difficult to calculate. Based on the results of a large study conducted in 2009-2011, this group of scientists proposed a more concise and accurate method of detecting GFR, and CKD-EPI (Chronic Kidney Disease Epidemiology Collaboration Index) in currently screening studies [1,5,8] is widely used. This method requires blood creatinine, sex, weight and age. Due to the development of medical technology, calculator-programs have been developed today, which are adapted to the simultaneous detection of GFR by the above methods, which will facilitate the screening and diagnosis.

One of the diagnostic urine markers for impaired renal filtration is proteinuria. Although proteinuria is also a widely used type of assay in CKD screening, its sensitivity and accuracy are lower than those of the albuminuria test [6,10].

In the early stages of renal glomerulonephritis, the release of small molecular weight proteins in the urine was detected (albuminuria). Among the protein fractions of albumin is a protein with a small molecular mass (65Da), which is excreted in the urine in the early stages of impaired renal filtration. Therefore, in cases of low protein excretion in the urine, the sensitivity of the proteinuria test is low, and the albuminuria (microalbuminuria) test allows the detection of low protein levels.

The use of test strips, which are useful in the detection of microalbumin in the urine in screening tests, increases the diagnostic efficiency.

Albuminuria / proteinuria is one of the main diagnostic markers of renal dysfunction according to the concept of K / DOQI of CKD.

The level of microalbuminuria was detected and analyzed in all patients diagnosed with CKD and in the population at risk (Figure 1).

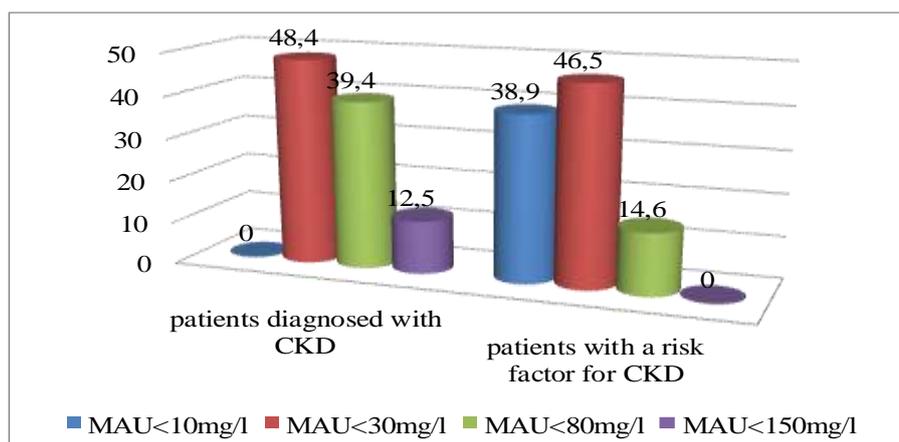


Figure 1. The incidence of microalbuminuria detected in the studied contingent, %

Conclusion

Among the studied population, the incidence of CKD was 1 in 12, and one in 5 was found to be at risk of developing CKD. Because CKD was asymptomatic for a long time and there were no complaints from patients, they were registered as a practically healthy population.

The use of microalbuminuria test strips to monitor renal function in the primary care setting for early detection of CKD in the general population is of great diagnostic importance.

Arterial hypertension, coronary heart disease, diabetes mellitus and gestational nephropathy, and over 60 years of age play an important role in the development of CKD. Therefore, it is recommended that the population with these diseases be included in the group at high risk of developing CKD, and a regular nephrological examination is recommended.

LIST OF REFERENCES:

1. Agranovich N.V. Explanation of the effectiveness of prophylaxis and treatment of patients with chronic kidney disease in outpatient clinics // *Nephrology*. St. Petersburg. 2013. Tom 17. №5. str43-48 (Russian).
2. Akhmedova N. et al. (2021). Analysis of the Results of a Study on the Frequency of Occurrence and Prevalence of Risk Factors for Chronic Kidney Disease. // *International Journal of Current Research and Review*. 13. 127-131. 10.31782/IJCRR.2021.13232.
3. Bobkova I.N., Sukina A.A., Shestakova M.V. Assessment of the level of nephrin and podocin in the urine in patients with diabetes mellitus. // *Nephrology*. 2017, 21(2):33-40 (Russian).
4. James M.T., Hemmelgarn B.R., Tonelli M: Early recognition and prevention of chronic kidney disease // *Lancet* 375.2010.P 1296-1309
5. KDIGO. Clinical Practice Guideline for the Evaluation and Management of Chronic Kidney Disease // *Kidney Int. USA/2013*. V.3, No.1. P.1-150.
6. Klimontov V.V., Korbut A.I., Fazullina O.N., Vinogradov I.V., Romanov V.V. Clinical and laboratory characteristics of variants of chronic kidney disease in patients with type 2 diabetes mellitus. // *Diabetes mellitus*. 2019, 22 (6): 515-525. (Russian).
7. Liam Manns, Nairne Scott-Douglas, Marcello Tonelli, Robert Weaver, Helen Tam-Tham, and Brenda Hemmelgarn // *A Population-Based Analysis of Quality Indicators in CKD Clin J Am Soc Nephrol* 12.2017. P 727-733
8. Nagaitseva S.S., Shvetsov M.Yu., Shalyagin Yu.D. and etc. Evaluation of albuminuria by the method of test strips from the early detection of chronic kidney disease in individuals with varying degrees of risk (experience of the Health Center of the Moscow Region) // *Therapeutic archive*. Moscow. 2013. No. 26. pp.38-43. (Russian).
9. Noordzij M., Leffondre K., vanStralen K.J., Zoccali C., Dekker F.W., Jager K.J: When do we need competing risks methods for survival analysis in nephrology? // *Nephrol Dial Transplant* 28 2013.P: 2670-2677
10. Smirnov A.V., Dobronravov V.A., Kayukov I.G. Chronic disease of the kidneys: the basic principles of screening, diagnostics, prophylaxis and approach to treatment. *Natsionalnye rekomendatsii // Nephrologiya*. St. Petersburg 2012. №1. S.89-115. (Russian).
11. Sulaymonova G.T., Amonov M.K., Rakhmonova K.E. Frequency of factors in the risk of chronic diseases of the kidneys in rural areas. // *Bulletin of Science and Education* № 24 (102). Chast 2. 2020. Str. 79-85. (Russian).

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