MODERN MEDICINE AND PRACTICE
https://inovatus.es/index.php/ejmmp
EUROPEAN JOURNAL OF MODERNMEDICINEAND PRACTICE
Vol. 4 No. 5 (May - 2024) EJMMP ISSN: 2795-921X

CURRENT VIEWS ON DIABETIC NEPHROPATHY

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Annotation: Diabetes mellitus (DM) is a disease that which accompanies a person throughout quite a long period of time. On the- starting from the moment of appearance of this pathology and to this day it is of interest to many researchers due to their insufficient knowledge. Despite the existing successes in the treatment of diabetes, currently, to a large extent unfortunately, there is an increase in incidence both type 1 and type 2 diabetes. According to pro-It is predicted that by 2040 the number of people suffering from diabetes aged 20-79 years, will increase to 642 million. The greatest danger of diabetes is, of course, associated with complications developing thanks to due to its damaging effects on blood vessels. An important place in this series is occupied by diabetic nephropathy (DN), which develops when in approximately 20.1% of patients with type 1 diabetes and 6.3% of patients with type 2 diabetes. Diabetes mellitus (DM) is a disease that accompanies a person for a long period of time. The greatest danger of diabetes is undoubtedly associated with complications that develop due to its damaging effects on blood vessels, particularly diabetic nephropathy (DN), which develops in approximately 20.1% of patients with diabetes of the 1st type and 6.3% of patients with diabetes of the 2nd type. In patients with diabetes of the 2nd type, diabetic nephropathy ranks third among causes of death after diseases of the cardiovascular system and oncological pathologies.

Key words: diabetic nephropathy, kidney, diabetes, hyperglycemia, final products of glycosylation.

Diabetic nephropathy is a complication of diabetes mellitus, in which there is a violation of blood filtration in the tubules and glomeruli of the nephron, replacement of the renal parenchyma with connective tissue and the development of renal failure. The greatest danger of diabetes is, of course, associated with complications developing thanks to due to its damaging effects on blood vessels. An important place in this series is occupied by diabetic nephropathy (DN), which develops when in approximately 20.1% of patients with type 1 diabetes and 6.3% of patients with type 2 diabetes [1]. In patients with type 2 diabetes, diabetic nephro- Ropathy ranks third among the causes death after cardiovascular diseases stagnation of the system and oncological pathologies [2].

Diabetic nephropathy (DN) is one of the most frequent, severe and prognostically unfavorable wasps falsehoods of diabetes mellitus (DM). In recent years, NAM took a leading position among the causes of renal failure sufficiency in industrialized countries [3,4]. Progressive decline in renal function in DN associated associated with the development of fibrosis of the renal glomeruli and tuba lointerstitium. Initial signs of kidney fibrosis with DM is detected in the first years of clinical course for diseases with normal excretion of albumin from urine choi and microalbuminuria [2]. Significant progress has been made in recent years in studying the role of growth factors in the pathogenesis of DN, which allowed us to outline fundamentally new approaches to diagnosis and treatment of this complication. Present In this review, we summarized the data on the involvement of fibrogenic (transforming growth factor β, necrofactor

for tumors α, fibroblast growth factor, factor connective tissue growth factor, endothelial growth factor blood vessels) and antifibrogenic growth factors (bone morphogenetic protein 7 and hepa growth factor tocytes) in the formation of kidney fibrosis in DN. Transforming growth factor (TGF/β, TGF/β). TGF β is recognized as a key mediator in development ties of diabetic nephrosclerosis. Almost all types of adhesive the kidneys can produce TGF β and its receptors. In diabetes there is an increase in the expression of TGF β and its type I and type II receptors in nephrocytes [8]. Synthesis of TFR β increases already in the first days after diabetes induction and coincides in time with an increase in collagen synthesis. Stimulators of TGF β production in glomerular cells These are glucose and angiotensin II [5].

But the initial structural and functional new changes are starting to develop until albumin excretion increases with urine [6]. Modern achievements in the field field of molecular medicine and experimental tal nephrology lead to gradual increasing the amount of knowledge about more detailed mechanisms of development of MAU and PU. And there was proof

Podocytes play a major role in these processes – main components of the slit diaphragm glomeruli [6,7]. There are works thatdemonstrate the relationship between the growth of AC and the funcnational disorders in podocytes. It has been shown that these changes vary develop long before the detection of UIA and can be detected even with a short course of diabetes. Thus, podocytes are of interest for development methods for inhibiting the development of DN [1,6]. Myself the podocyte has a rather complex structural structure that provides extensive set of its functions and adaptive re- shares under physiological conditions, but, in its own way turn, makes this cell very sensitive to various damaging factors.

Hyperlipidemia Hygiene plays a huge role in the development of DN. perlipidemia, which is characterized by increased total cholesterol levels, low density lipoprotein (LDL) and very low density lipoproteins (VLDL), decreased lipoprotein levels high density (HDL) and also leads to kidney pathology. For a long time this factor were not taken into account, only after research ny J.F. Moorhead and J.Diamond hyperlipidemia began to be seen as quite serious nephrotoxic factor [9]. Was a scientist a parallel was drawn between the process of formation formation of nephrosclerosis (glomerulosclerosis) and the mechanism of development of vascular atherosclerosis. This can be fully explained by the structural similarities glomerular mesangial cells with smooth muscle cells of arteries. Oxidized LDL, growth factors and cytokines increased study the synthesis of mesangial components matrix, accelerating sclerosis of the glomeruli.

In turn, lipids filtered into primary urine, can lead to damagenucleation of renal tubular cells [4,5].

Forecast and prevention of diabetic nephropathy

The prognosis of diabetic nephropathy depends on the stage of the disease and the timeliness of treatment. In this case, the only reversible stage of development is the stage of microalbuminuria. At the stage of proteinuria, it is only possible to stop the progression of diabetic nephropathy to chronic renal failure. If the patient reaches the terminal stage of diabetic nephropathy, then the prognosis is the most unfavorable, since this condition is incompatible with life.

Diabetic nephropathy and chronic renal failure resulting from it indicate the need for replacement therapy - kidney transplantation or hemodialysis. In this case, chronic renal failure is the cause of 15% of deaths occurring in patients with type 1 diabetes mellitus under 50 years of age. Prevention of diabetic nephropathy consists of constant monitoring of patients suffering from diabetes, monitoring angiotensin levels, self-monitoring of glycemic levels, timely correction of therapy, and compliance with all doctor’s recommendations.

Diagnosis of diabetic nephropathy

Diagnosing diabetic nephropathy at an early stage is very important. For this purpose, a patient with diabetic nephropathy is prescribed a biochemical and general blood test, a biochemical and general urine test, a Zimnitsky test, a Rehberg test, and an ultrasound scan of the renal vessels.

The main markers in the early stages of diabetic nephropathy are microalbuminuria and glomerular filtration rate (GFR). For this purpose, in patients with diabetes mellitus, the ratio of creatinine and albumin in the morning urine or the daily excretion of albumin in urine is examined.

The transition of diabetic nephropathy to the stage of proteinuria can be judged by the presence of protein in the urine or by the release of albumin in the urine more than 300 mg/day. At this stage of the disease development, all the signs of nephrotic syndrome and increased blood pressure are observed. Diagnosis of the late stage of diabetic nephropathy does not cause difficulties, since, along with massive proteinuria and a decrease in SFC, patients experience an increase in the level of urea and creatinine in the blood, acidosis, anemia, hypocalcemia, hyperlipidemia, hyperphosphatemia, edema of the face and body.[9,10]

When diagnosing diabetic nephropathy and prescribing subsequent treatment, it is important to differentiate it from other diseases: acute and chronic glomerulonephritis, tuberculosis, chronic pyelonephritis. For this purpose, excretory urography, bacteriological examination of urine for microflora, and ultrasound of the kidneys are performed. If the patient experiences rapidly increasing proteinuria, persistent hematuria, or sudden development of nephrotic syndrome, a kidney biopsy is performed to clarify the diagnosis.

Treatment of diabetic nephropathy

The main goal pursued in the treatment of diabetic nephropathy is the prevention and maximum delay of further progression of the disease to COD, reducing the risk of heart attack, stroke, and coronary heart disease.

Depending on the stage of development, diabetic nephropathy has a different approach to treatment. At the same time, the common thing in therapy for all stages of diabetic nephropathy is strict control of blood sugar, blood pressure, as well as compensation for disturbances in mineral, protein, carbon, and lipid metabolism. In the treatment of diabetic nephropathy, the first-line drugs are ACE inhibitors and angiotensin receptor antagonists, which can normalize systemic and glomerular hypertension and slow the progression of the disease. Drugs can be prescribed even with normal blood pressure in doses that cannot lead to the development of hypotension.

Starting from the stage of microalbuminuria, a patient with diabetic nephropathy, along with the indicated treatment, is recommended to have a special low-protein, salt-free diet. To reduce the risk of developing cardiovascular diseases in diabetic nephropathy, correction of dyslipidemia is necessary, namely: a low-fat diet and taking medications that normalize the blood lipid spectrum.[6]

At the terminal stage in the treatment of diabetic nephropathy, the patient needs correction of diabetes treatment, detoxification therapy, normalization of hemoglobin levels, taking anti-azotemic drugs and sorbents, and prevention of osteodystrophy. If kidney function sharply deteriorates, then when prescribing treatment, the question of hemodialysis, donor kidney transplantation, or continuous peritoneal dialysis is raised.

Summarizing all of the above, we can conclude let us conclude that the pathogenesis of the development of DN quite complex and has a number of its own features - news This problem has spread all over the world and has not lost its relevance today time. Treatment of the last stage of DN is not only a complex process, but also, due to some economic aspects, very expensive. It's much easier to do prevention of vascular complications and dust- try to prevent the progression of the disease to terend stage renal failure, how to

treat patients with chronic renal failure using hemodia- Lisa. Therefore, despite detailed study existing problem, question of correction nephropathy remains open to this day.

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