ПОЧКИ
НИРКИ KIDNEYS

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When Should We Start Using Angiotensin Converting Enzyme Inhibitors/Angiotensin Receptor Blockers in Diabetic Kidney Disease?

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Abstract. *International guidelines do not recommend angiotensin converting enzyme (ACE) inhibitors/angiotensin receptor blockers (ARBs) usage in the first stage of diabetic kidney disease. It shows the view, based on a small statistical sample, that olmesartan (or possibly other ACE inhibitors/ARBs) should be used to prevent the transition of the first stage of diabetic kidney disease to the second one in type 2 diabetes mellitus.*
Keywords: *diabetic kidney disease; angiotensin converting enzyme inhibitors/angiotensin receptor blockers; olmesartan; international guidelines*

Current guidelines for diabetic kidney disease (DKD) KDIGO, 2012 and the ADA, 2017 state the following:

— We recommend not using an angiotensin-converting enzyme (ACE) inhibitor or an angiotensin receptor blocker (ARB) for the primary prevention of DKD in normotensive normoalbuminuric patients with diabetes (1A).

— We suggest using an ACE inhibitor or an ARB in normotensive patients with diabetes and albuminuria levels ≥ 30 mg/g who are at high risk of DKD or its progression (2C) [1].

— We suggest that an ARB or ACE inhibitor are used in adults with diabetes and CKD ND with urine albumin excretion of 30 to 300 mg per 24 hours (or equivalent*) (2D).

— We recommend that an ARB or ACE inhibitor are used in adults with diabetes and CKD ND with urine albumin excretion 4300 mg per 24 hours (or equivalent*) (1B) [2].

— In nonpregnant patients with diabetes and hypertension, either an ACE inhibitor or an angiotensin receptor blocker is recommended for those with modestly elevated urinary albumin-to-creatinine ratio (30–299 mg/g creatinine) B and is strongly recommended for those with urinary albumin-to-creatinine ratio ≥ 300 mg/g creatinine and/or estimated glomerular filtration rate < 60 mL/min/1.73 m^2 (A).

— An ACE inhibitor or an angiotensin receptor blocker is not recommended for the primary prevention of diabetic kidney disease in patients with diabetes who have normal blood pressure, normal urinary albumin-to-creatinine ratio (< 30 mg/g creatinine), and normal estimated glomerular filtration rate (B) [3].

Treatments that produce a lasting decrease in urinary albumin excretion may slow the progression of DKD even in the absence of hypertension [1]. It is well known that the first phase of DKD that is characterized by normoalbuminuria, normotension and glomerular hyperfiltrationis going to enter the next albuminuria stage and be accompanied by hypertension. Our experience shows that within a year from the hyperfiltration debut there is the appearance of albuminuria, or BP over 130/80 mm Hg in 64 % of patients. The data obtained from a retrospective analysis of 22 patients with DKD type 2 diabetes. These people made up the comparison group to those, which according to current recommendations were not treated with ACE inhibitors/ARB. 21 patients with 1 stage by Mogensen DKD received 10 mg

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Table 1

Group7	To DKD 2 stage	DKD 1 stage	Total	χ^2
Base, treatment free	14	8	22	8,97
To compare, patients with olmesartan 10 mg qd	3	18	21	
Total	17	26	43	

olmesartan once at night with a duration of 1 year. Glycemic control in both groups was compared with the level of glycated hemoglobin that was 6.4 ± 0.1 % and 6.5 ± 0.1 %, respectively. The comparison groups are shown in the table.

Following the data in the table, the differences in the groups is shown on the basis of "the transition to the second stage of the DSB" was evident (RR 4.45, 95% DI 1.49–13.30, P ≤ 0.05). The absolute risk in patients treated with olmesartan (CER) was 0.143, and in those who had expectant management — EER was 0.636, the number of patients needed to treat to prevent the transition to the second stage (NNT) was 2.026 with a sensitivity rate (Se) 0.824 and specificity (Sp) one — 0.692. The relative risk of reduction of 2 stage diabetic nephropathy progression (RRR) was 78 % with the absolute risk (ARR) of nearly 50 %.

There are two reasonable questions:

1. If the reason for the development of diabetic nephropathy is not eliminated, it is possible to expect that progression of DSB in its successive stages will not be observed?

2. If the reduction in the transition to the second stage is statistically significant, and olmesartan exhibits such a high efficiency, why won't we use an active strategy of prevention using this drug (or another ARB/ACE inhibitor) already at the first stage of the DKD?

The data require randomized study, probably with PROMISE (randomized, double-blind, placebo-controlled trial) design to confirm the appropriateness of this practice. However, such approachas avoiding ACE inhibitors/ARBs usage in eGFR less than 15 mL/min [4], which is already used in practice ahead of being included to international guidelines.

Conflict of interests: Not declared.

References

1. National Kidney Foundation. KDOQI Clinical Practice Guideline for Diabetes i CKD: 2012 update. Am J Kidney Dis. 2012;60(5):850-86.

2. Kidney Disease: Improving Global Outcomes (KDIGO) Blood Pressure Work Group. KDIGO Clinical Practice Guideline for the Management of Blood Pressure in Chronic Kidney Disease. Kidney inter., Suppl. 2012; 2:337–414. Available from: http://www.kidney-international.org & 2012 KDIGO 340

3. Diabetes Care 2017 Jan; 40 (Suppl.1):S88-S98. doi: 10.2337/dc17-S001http://care.diabetesjournals.org/content/40/Supplement_1/S88

4. Ivanov DD Next Step in Chronic Kidney Disease Therapy. Pochki. 2016;2(16):10-13. doi: 10.22141/2307-1257.0.2.16.2016.72205 (in Russian).

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Коли починати використовувати інгібітори ангіотензинперетворювального ферменту/блокатори рецепторів ангіотензину при діабетичній хворобі нирок?

Резюме. Міжнародні керівництва не передбачають використання інгібіторів ангіотензинперетворювального ферменту (ІАПФ)/блокаторів рецепторів ангіотензину (БРА) при першій стадії діабетичної хвороби нирок. Наведено погляд, що ґрунтується на нечисленній статистичній вибірці, згідно з яким доцільно використовувати олмесартан (або, можливо, інші ІАПФ/БРА) для профілактики переходу першої стадії діабетичної хвороби нирок у другу при цукровому діабеті 2-го типу.

Ключові слова: діабетична хвороба нирок; інгібітори ангіотензинперетворювального ферменту/блокатори рецепторів ангіотензину; олмесартан; міжнародні керівництва

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Когда начинать использовать ингибиторы ангиотензинпревращающего фермента/блокаторы рецепторов ангиотензина при диабетической болезни почек?

Резюме. Международные руководства не предполагают использование ингибиторов ангиотензинпревращающего фермента/блокаторов рецепторов ангиотензина (ИАПФ/БРА) при первой стадии диабетической болезни почек. Приведена точка зрения, основанная на немногочисленной статистической выборке, согласно которой целесообразно использовать олмесартан (или, возможно, другие ИАПФ/БРА) для профилактики перехода первой стадии диабетической болезни почек во вторую при сахарном диабете 2-го типа.

Ключевые слова: диабетическая болезнь почек; ингибиторы ангиотензинпревращающего фермента/блокаторы рецепторов ангиотензина; олмесартан; международные руководства