

## CORRECTION OF EXCRETORY FUNCTION OF THE STOMACH IN PATIENTS WITH CHRONIC RENAL FAILURE

### КОРРЕКЦИЯ ВЫДЕЛИТЕЛЬНОЙ ФУНКЦИИ ЖЕЛУДКА У ПАЦИЕНТОВ С ХРОНИЧЕСКОЙ ПОЧЕЧНОЙ НЕДОСТАТОЧНОСТЬЮ

#### SURUNKALI BUYRAK ETISHMOVCHILIGI BO'LGAN BEMORLARDA OSHQOZON AJRATISH FUNKTSIYASINI KORREFSIYALASH

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**Relevance.** *Chronic renal failure (CRF) is a gradual deterioration of kidney function over a long period of time. In modern literature, the term "chronic kidney disease" is used, which has a slightly broader meaning and implies a decrease in kidney function over three months or more. CKD is a syndrome resulting from irreversible progressive decline in renal function caused by a decrease in the mass of their functioning parenchyma with concomitant metabolic disorders and the development of pathology in a number of organs and systems. According to the World Health Organization, more than 850 million people worldwide suffer from kidney-related diseases. Chronic kidney disease (CKD) causes 2.4 million deaths per year and is the 6th and fastest growing cause of death. The number of patients receiving dialysis treatment in the world is more than 2.5 million people. Treatment of CKD stages I-IV is aimed at reducing the rate of progression of renal failure and consists of dietary recommendations, blood pressure control, correction of anemia, hyperlipidemia and other conservative measures. Unfortunately, most diseases leading to CKD are currently incurable. The rate of progression of renal failure depends significantly on how well the patient follows the nephrologist's recommendations on diet and drug therapy. Risk factors that worsen kidney function are: uncontrolled intake of medications (antibiotics, antipyretics, painkillers, diuretics, dietary supplements), high blood pressure, alcohol. According to WHO, symptoms of atrophic gastritis with low acidity occur in 30% of the world's population, and not all of them receive appropriate treatment. People aged 40 and older are most susceptible to the disease. Low acidity is a serious problem. After all, the presence of acid in the stomach provides a bactericidal effect. With insufficient acid, such protection is significantly weakened and harmful microbes can freely enter the body along with food, disrupting the intestinal and stomach microflora. We were also interested in the issue of the excretory function of the stomach (EFG), because metabolic products (lactic acid, urea, creatinine, poisons, etc.) are excreted into the lumen of the stomach through the mucous membrane. Given the above, the study and correction of EFG in chronic renal failure is a relevant area in medicine.*

**Keywords:** *excretory function of the stomach, secretory function of the stomach, chronic renal failure, gastrochromoscopy, plantain juice, chronic kidney disease.*

**Актуальность.** *Хроническая почечная недостаточность (ХПН) - это постепенное ухудшение функции почек в течение длительного периода времени. В современной литературе используется термин "хроническая болезнь почек", который имеет несколько более широкое значение и подразумевает снижение функции почек в течение трех месяцев и более. ХБП - это синдром, возникающий в результате необратимого прогрессирующего снижения функции почек, вызванного уменьшением массы их функционирующей паренхимы с сопутствующими нарушениями обмена веществ и развитием патологии в ряде органов и систем. По данным Всемирной организации здравоохранения, более 850 миллионов человек во всем мире страдают заболеваниями, связанными с почками. Хроническая болезнь почек (ХБП) является причиной 2,4*

миллиона смертей в год и является шестой и самой быстрорастущей причиной смертности. Число пациентов, получающих лечение диализом, в мире составляет более 2,5 миллионов человек. Лечение ХБП I-IV стадий направлено на снижение скорости прогрессирования почечной недостаточности и состоит из рекомендаций по питанию, контроля артериального давления, коррекции анемии, гиперлипидемии и других консервативных мероприятий. К сожалению, большинство заболеваний, приводящих к ХБП, в настоящее время неизлечимы. Скорость прогрессирования почечной недостаточности в значительной степени зависит от того, насколько хорошо пациент соблюдает рекомендации нефролога по диете и медикаментозной терапии. Факторами риска, ухудшающими функцию почек, являются: бесконтрольный прием лекарственных препаратов (антибиотиков, жаропонижающих, обезболивающих, мочегонных средств, пищевых добавок), высокое кровяное давление, алкоголь. По данным ВОЗ, симптомы атрофического гастрита с пониженной кислотностью встречаются у 30% населения земного шара, и не все из них получают соответствующее лечение. Наиболее подвержены заболеванию люди в возрасте 40 лет и старше. Пониженная кислотность является серьезной проблемой. Ведь присутствие кислоты в желудке оказывает бактерицидное действие. При недостаточном количестве кислоты такая защита значительно ослабляется, и вредные микробы могут свободно проникать в организм вместе с пищей, нарушая микрофлору кишечника и желудка. Нас также интересовал вопрос об выделительной функции желудка (ЭФГ), поскольку продукты обмена веществ (молочная кислота, мочевины, креатинин, яды и т.д.) выводятся в просвет желудка через слизистую оболочку. Учитывая вышеизложенное, изучение и коррекция ЭФГ при хронической почечной недостаточности является актуальным направлением в медицине.

**Ключевые слова:** выделительная функция желудка, секреторная функция желудка, хроническая почечная недостаточность, гастрохромоскопия, сок подорожника, хроническая болезнь почек.

**Dolzarbliqi.** Surunkali buyrak etishmovchiligi (CRF) uzoq vaqt davomida buyrak funktsiyasining asta-sekin yomonlashishi. Zamonaviy adabiyotlarda "surunkali buyrak kasalligi" atamasi qo'llaniladi, bu biroz kengroq ma'noga ega va buyrak funktsiyasining uch oy yoki undan ko'proq vaqt davomida pasayishini anglatadi. CKD-bu buyrak funktsiyasining qaytarilmas progressiv pasayishi natijasida yuzaga keladigan sindrom bo'lib, ular metabolik kasalliklar bilan birga ishlaydigan parenxima massasining pasayishi va bir qator organlar va tizimlarda patologiyaning rivojlanishi natijasida yuzaga keladi. Jahon Sog'liqni saqlash tashkiloti ma'lumotlariga ko'ra, dunyo bo'ylab 850 milliondan ortiq odam buyrak bilan bog'liq kasalliklardan aziyat chekmoqda. Surunkali buyrak kasalligi (CKD) yiliga 2,4 million o'limga olib keladi va o'limning 6-va eng tez o'sib borayotgan sababidir. Dunyoda dializ bilan davolanadigan bemorlar soni 2,5 milliondan ortiq kishini tashkil qiladi. I-IV CKD bosqichlarini davolash buyrak etishmovchiligining rivojlanish tezligini kamaytirishga qaratilgan va parhez tavsiyalari, qon bosimini nazorat qilish, kamqonlikni tuzatish, giperlipidemiya va boshqa konservativ choralaridan iborat. Afsuski, CKDGA olib keladigan kasalliklarning aksariyati hozirda davolanmaydi. Buyrak etishmovchiligining rivojlanish tezligi bemorning nefrologning parhez va dori terapiyasi bo'yicha tavsiyalariga qanchalik yaxshi rioya qilishiga bog'liq. Buyrak funktsiyasini yomonlashtiradigan xavf omillari: dori-darmonlarni nazoratsiz qabul qilish (antibiotiklar, antipiretiklar, og'riq qoldiruvchi vositalar, diuretiklar, xun takviyeleri), yuqori qon bosimi, alkohol. JSST ma'lumotlariga ko'ra, kislotaligi past bo'lgan atrofik gastrit belgilari dunyo aholisining 30 foizida uchraydi va ularning hammasi ham tegishli davolanmaydi. 40 va undan katta yoshdagi odamlar kasallikka ko'proq moyil. Past kislotalilik jiddiy muammodir. Axir oshqozonda kislota mavjudligi bakteritsid ta'sirini ta'minlaydi. Kislota etishmasligi bilan bunday himoya sezilarli darajada zaiflashadi va zararli mikroblar tanaga oziq-ovqat bilan birga erkin kirib, ichak va oshqozon mikroflorasini buzadi. Bizni oshqozonning ekskretor funktsiyasi (EFG) masalasi ham qiziqirdi, chunki metabolik mahsulotlar (sut kislotasi, karbamid, kreatinin, zaharlar va boshqalar) shilliq qavat orqali oshqozon bo'shlig'iga chiqariladi. Yuqoridagilarni hisobga olgan holda, surunkali buyrak etishmovchiligida EFGNI o'rganish va tuzatish tibbiyotda tegishli sohadir.

**Kalit so'zlar:** oshqozonning ekskretor funktsiyasi, oshqozonning sekretor funktsiyasi, surunkali buyrak etishmovchiligi, gastrokromoskopiya, chinor sharbati, surunkali buyrak kasalligi.

**Inroduction.** Chronic kidney failure (CKF) is a progressive condition that not only impairs renal function but also affects multiple organ systems, including the gastrointestinal tract. One of the less studied yet clinically significant aspects of CKF is the disruption of the stomach's excretory function. This imbalance often exacerbates the complications of uremia and can impair the overall well-being of patients, leading to further gastrointestinal distress, such as gastroparesis, acid reflux, and nausea.

The intricate connection between the kidneys and the stomach arises from shared neurohumoral pathways and metabolic derangements that occur during renal insufficiency. As CKF progresses, the stomach's ability to process and excrete digestive enzymes and acids becomes compromised, contributing to the complexity of managing these patients. Addressing and correcting the excretory dysfunction of the stomach in CKF patients is vital to improving their digestive health and quality of life. This article aims to explore the mechanisms underlying gastric excretory dysfunction in CKF and discusses current approaches to correct this dysfunction, with a focus on therapeutic strategies that can optimize gastrointestinal health in the context of kidney failure. Understanding and managing these disturbances is essential for providing comprehensive care to patients with CKF, as it directly influences their nutritional status, overall comfort, and disease prognosis. The aim of our study was to stop the progression and development of complications and improve the general condition of patients with chronic renal failure by enhancing (increasing) the EFF.

**Materials and methods.** The observations were carried out on 40 patients (24 men, 16 women) with CRF in the Khorezm Regional Multidisciplinary Medical Center in the Department of Nephrology at the Department of Internal Medicine of the Urgench Branch of the TMA. The following were studied in the examined patients before and after treatment: general blood and urine tests, Zimnitsky test, glomerular infiltration rate, biochemical tests (urea and creatinine), total protein and its fractions, coagulogram, ultrasound, excretory and secretory function of the stomach, radiography, if necessary CT and MSCT. The classification of chronic renal failure (CKD) is based on the glomerular filtration rate calculated using the MDRD formula in accordance with international recommendations proposed in 2002 by the K/DOQI expert working group. The study was conducted in patients with CKD stages I-IV. The gastrochromoscopic method was used, which consists in determining the excretory function of the stomach by studying the rate of release (into the gastric contents) of the dye Neutralrot after intramuscular injection of 2 ml of its 1% solution. The appearance of the dye in the gastric contents within 12-15 minutes was taken as the norm. It was found that the dye appeared in 9 (22.5%) patients within the standard time; within 20-30 minutes in 12; within 30-40 minutes in 9 and over 40 minutes in 10 patients examined.

When determining the secretory function of the stomach in 40 patients with CRF, a hypocid state of gastric juice was found in 22 observations, normacidity in 12 patients, and an increase (hyperacidity) in the secretory function of the stomach in 6 patients. Thus, in 34 (85%) of the examined patients with CRF, normal and decreased secretory function of the stomach was found.

34 patients with normal and decreased secretory function of the stomach suffering from chronic renal failure were divided into 2 groups: the first (control) group of 12 patients received only generally accepted (standard) treatment (ST), the second (main) group included 22 patients with CRF who received, in addition to ST, plantain juice to improve the excretory function of the stomach, 1 tablespoon dissolved in 50 ml of warm water, 15-20 minutes before meals, 3 times a day, for 1 month.

The age and sex composition of the control and main groups were identical. Conventional treatment included: 1. anticoagulants, 2. drugs improving blood rheology and detoxification, 3. nephroprotective and hypotensive drugs, 4. calcium channel blockers, 5. b-blockers, 6. antioxidants, 7. water-soluble vitamins, 8. anabolic steroids. Particular attention was also paid to the diet, where the consumption of proteins, salt and products with high potassium content was limited, and with the inclusion in the diet of fruits, vegetables, lean meat, chicken, turkey, fish, seafood, eggs, legumes, nuts, soy and low-fat dairy products. Improvements in the general condition of patients with CRF were assessed based on symptoms of general intoxication (reduction of general weakness, nausea,

vomiting, edema, improvement of appetite, normalization of pallor and dryness of the skin, increase in urine output), normalization of blood pressure, laboratory parameters (urea, creatinine, etc.)

**Results and their discussion.** The data we obtained indicate that the majority (77.5%) of patients with CRF have a delay in the release of neutralrot dye, which indicates a violation of the excretory function of the stomach in this category of patients. The results of biochemical analyses were as follows: the level of creatinine and urea before treatment in both groups was within 250  $\mu\text{mol} / \text{l}$ , 20  $\text{mmol} / \text{l}$ , respectively. After a month of treatment in the control group, creatinine in the blood was within 130  $\mu\text{mol} / \text{l}$ , urea 11  $\text{mmol} / \text{l}$ , in the examined (main) group, respectively 96  $\mu\text{mol} / \text{l}$ , 8  $\text{mmol} / \text{l}$ , which indicates a positive effect of plantain juice in the excretion of protein breakdown products.

Indeed, nitrogenous waste products (protein breakdown products) such as urea and creatinine are excreted by the body only with urine using the excretory function of the kidneys. In patients with chronic renal failure (CRF), the excretion of creatinine and urea with urine decreases due to a decrease in the level of renal filtration. The new method we propose is based on the fact that the EFG (albeit in smaller quantities) also excretes metabolic products such as urea, lactic acid, poisons, creatinine, etc. through the mucous membrane into the lumen of the stomach, and that when EFG is stimulated, the condition of patients with chronic renal failure improves. We believe that in order to improve (stimulate) the EFG, it is necessary to increase the secretory and motor-evacuation function of the stomach. For this purpose, in the examined group we prescribed plantain juice in addition to OL and thereby achieved an improvement in the general condition of patients, a reduction in the symptoms of intoxication, an increase in the bactericidal function of the stomach and, most importantly, a greater removal of the final harmful metabolic products from the body in chronic renal failure compared to the control group.

### **Conclusions.**

1. In the majority (77.5%) of patients with chronic renal failure, the excretory function of the stomach is impaired.
2. In (85%) of the examined patients with chronic renal failure, normal and decreased secretory function of the stomach was detected.
3. When plantain juice is included in the generally accepted treatment of patients with chronic renal failure, due to the increase in secretory, motor-evacuation and normalization of the excretory function of the stomach, an improvement in the general condition of patients, a reduction in the symptoms of intoxication, an increase in the bactericidal function of the stomach and a greater removal of harmful end products of metabolism from the body are achieved.

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