



# Functional Non-Existent Dyspepsy in Patients with Chronic Pyelonephritis

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## Abstract

**Introduction:** Infectious and inflammatory kidney disease - chronic pyelonephritis - is a widespread disease and has a long course. Prolonged medical treatment can provoke the appearance of abdominal and (or) dyspeptic syndrome, for the correction of which cytoprotective therapy is appropriate. Itopride hydrochloride (itoprid) is known to be widely used in the clinic of internal medicine, in particular for the relief of gastrointestinal symptoms of functional non-ulcer dyspepsia (FND).

**Goal:** The aim of our study was to study the dynamics of clinical symptoms and functional status of the gastric and duodenal mucosa in patients with manifestations of TNF on the background of CP without signs of chronic renal failure.

**Materials and Methods:** Two groups of patients: 32 patients with PN with manifestations of functional non-ulcer dyspepsia, which formed the main group; The comparison group was a group of 30 patients who were treated exclusively allopathically without the appointment of itopride hydrochloride, which by age, sex and clinical form of CP probably did not differ from the main group.

**Results and Discussion:** Pathology of the digestive system was manifested by the phenomena of moderate exacerbation (31.07%) or unstable remission (68.93%). Provoking factors in the emergence of diseases of the digestive system were emotional stress, eating disorders and bad habits, bad habits. The combination of several causal factors was determined in 75.8% of cases. According to the previous treatment of exacerbations of CP, due attention was not paid to the correction of lesions of the digestive system. The structure of clinical syndromes revealed the following symptoms from the digestive organs: pain (61.25%), dyspeptic (87.35%), astheno-autonomic syndrome (100%), autonomic disorders (61.76%). Dyspeptic syndrome manifested itself in the form of gastric and intestinal dyspepsia. External examination revealed a lining of the tongue in all patients. Feeling of discomfort in the epigastric region was observed in 37.12% of patients. In most cases, the pain was mild. Palpation revealed pain under the xiphoid process (35.56%), pyloroduodenal area (24.36%) and in both areas. In some patients (11.23%) palpation revealed pain in the absence of complaints from the digestive system. In the study of acid-forming function of the stomach by pH-metry, the predominance of hyperacid states was established. Unchanged gastric secretion (pH = 1.6-2.2) was in 32.15% of patients, moderately increased (pH = 1.3-1.5) in 31.45% of cases and moderately reduced (pH = 2, 3-3.5) in 24.65% of patients. Patients of the main group on the background of taking itopride hydrochloride noted a decrease in gastrointestinal manifestations. the dynamics of clinical symptoms of pain depending on the localization, which was detected by palpation. After a course of treatment, only 1 patient (3.12%) of the main group showed palpatory pain in the epigastric region, 2 (6.25%) - in the pyloroduodenal area (p <0.05). Whereas in the comparison groups these indicators are slightly worse.

**Conclusions:** Thus, when studying the clinical symptoms of GDZ in patients with TNF on the background of CP in the dynamics of treatment found greater effectiveness in the group with the inclusion of itopride hydrochloride compared to standard treatment.

**Keywords:** Functional Nonulcer Dyspepsia; Chronic Pyelonephritis

## Introduction

Infectious-inflammatory kidney damage - chronic pyelonephritis - is a widespread disease and has a long course. The reasons for the chronicity of the disease are:

- lack of timely therapy or inadequate treatment of pathologies accompanied by impaired diuresis
- ineffective scheme of treatment of acute pyelonephritis
- appearance of resistant strains of the pathogen or pathological microorganisms localized in tissue cells
- reduction of immune defense forces
- transmitted viral and infectious childhood diseases
- long-term existing foci of infection
- hormonal imbalance (gestation, puberty, menopause)
- congenital anomalies that cause urination disorders
- hypothermia and stressful situations

Medical treatment of chronic pyelonephritis involves antibiotic therapy, as well as hypotensive drugs if necessary. Long-term drug treatment can provoke the appearance of abdominal pain and (or) dyspeptic syndrome, for the correction of which cytoprotective therapy is appropriate [1-4]. It is known that itoprid hydrochloride (itoprid) is widely used in the clinic of internal diseases, in particular, to relieve gastrointestinal symptoms of functional non-ulcer dyspepsia (FND) (chronic gastritis), namely:

- abdominal distension
- a feeling of rapid satiety
- pain and discomfort in the upper abdomen
- anorexia
- heartburn
- nausea
- vomiting

According to the Rome III criteria, functional dyspepsia is characterized by the presence of at least one symptom (feeling of heaviness after eating, rapid satiety, epigastric pain, heartburn in the epigastrium) lasting at least 3 months during the last 6 months in the absence of organic causes that could be explain the occurrence of the disease.

## Goal

The aim of our study was to study the dynamics of clinical symptoms and the functional state of the mucous membrane of the stomach and duodenum in patients with manifestations of FND on the background of CP without signs of chronic renal failure.

## Materials and Methods

Therapeutic effectiveness of itopride hydrochloride (1 tablet - 50 mg) once a day in the morning for 30 minutes.

before meals on the background of antibiotic therapy was studied by us in the treatment of 32 patients with manifestations of functional non-ulcer dyspepsia, who made up the main group. The comparison group was a group of 30 patients who were treated exclusively allopathically without the appointment of itopride hydrochloride, which probably did not differ from the main group in terms of age, gender and clinical form of CP. Assessment of the condition of the upper urinary tract should be carried out using ultrasound to rule out obstruction of the urinary tract or kidney diseases. Additional imaging modalities, such as spiral computed tomography or excretory urography, should be considered if the patient remains febrile after 72 hours of treatment.

## Results and their Discussion

Pathology of the digestive system was manifested by the phenomena of moderate exacerbation (31.07%) or unstable remission (68.93%). The provoking factors in the occurrence of diseases from the side of the digestive organs were emotional overstrain, violation of the regime and nature of nutrition, and bad habits. A combination of several causal factors was determined in 75.8% of cases. According to the previous treatment of exacerbations of CP, due attention was not paid to the correction of lesions of the digestive system. According to the structure of clinical syndromes, the following symptoms were detected from the side of the digestive organs: pain (61.25%), dyspepsia (87.35%), astheno-vegetative syndrome (100%), vegetative disorders (61.76%). The dyspeptic syndrome manifested itself in the form of gastric and intestinal dyspepsia. During the external examination, tongue coating was found in all patients. Discomfort in the epigastric area was noted in 37.12% of patients. In most cases, the pain syndrome was moderate. Pain under the xiphoid process (35.56%), pyloroduodenal area (24.36%) and in both areas was determined during palpation. Part of the patients (11.23%) had palpable tenderness in the absence of complaints from the digestive organs. When studying the acid-forming function of the stomach with the help of pH-metry, the predominance of hyperacidic conditions was established. Unchanged gastric secretion (pH=1.6-2.2) was in 32.15% of patients, moderately increased (pH=1.3-1.5) in 31.45% of cases and moderately decreased (pH=2, 3-3.5) in 24.65% of patients.

Patients of the main group, while taking itopride hydrochloride, noted a decrease in gastroenterological manifestations. The dynamics of the severity of clinical signs on the part of GDZ under the influence of complex treatment with the inclusion of itopride hydrochloride is shown in the Table 1.

Clinical Sign	Before Treatment		After Treatment		P
	Abs.	P±mp	Abs.	P±mp	
Appetite disorder	14	27,2±4,7	4	15,4± 3,5	<0,05
Nausea	10	39,1±5,6	5	23,4± 3,5	<0,05
Sensitivity in the epigastrium	18	66,2±4,2	5	19,5±3,8	<0,05
Linguistics of the tongue	15	54,2±4,2	6	26,3± 4,6	<0,05
Bad breath	14	46,4±3,6	4	18,8± 1,8	<0,05
Intestinal disorders	12	35,1± 3,5	3	15,3± 3,5	<0,05

**Table 1:** The dynamics of the severity of clinical symptoms on the part of GDZ in patients with CP of the main group (n=32) under the influence of complex treatment with the inclusion of itopride hydrochloride (%\*).

Note: percentage of the total number of patients with relevant manifestations of the disease.

Positive dynamics of the pain syndrome were noted. If before the treatment pain sensations of a periodic nature in the epigastric and pyloroduodenal areas were detected in 10 patients of the main group and in 9 patients of the

comparison group, then after the course of treatment they remained in 2 patients of the main group. In patients of the comparison group, on the background of standard treatment, the pain symptom remained in 6 patients (p<0.05) (Table 2).

Clinical syndrome	Before treatment		After treatment	
	Basal group (n=32)	Comparison group (n=30)	Basal group (n=32)	Comparison group (n=30)
Painful	10 (31,25%)	9 (30,0%)	2 (6,25%)**	6 (20,0%)*
Astheno-vegetative	32 (100%)	30 (100%)	4 (12,5%)**	9 (30,0%)*
Dyspeptic	18 (56,25%)	21 (70,0%)	3 (9,37%)**	7 (23,33%)*

**Table 2:** Dynamics of clinical syndromes on the part of GDZ in examined patients with manifestations of FND on the background of CP (n, %).

Note: \*the probability of a difference with the indicators before treatment (p<0.05),

\*\* the probability of a difference with the indicators of the comparative group (p<0.05).

Clinical sign	Basal group (n =32)		Comparison group (n =30)	
	Before treatment	After treatment	Before treatment	After treatment
<b>Gastric dyspepsia syndrome</b>				
Belching food	18 (56,25%)	5 (15,62%)*	17 (53,13%)	8 (26,66%)*
Belching sour	12 (37,5%)	2 (6,25%)*	11 (36,66%)	4 (13,33%)*
Belching air	13 (40,62%)	3 (9,37%)*	16 (50,0%)	6 (20,0%)*
Heartburn	12 (37,5%)	2 (6,25%)*	8 (26,66%)	4 (13,33%)*
Nausea	10 (31,25%)	5 (15,62%)*	8 (26,66%)	6 (20,0%)*
<b>Intestinal dyspepsia syndrome</b>				
Fasten	3 (9,37%)	0*	3 (10,05)	1(3,33%)*
Flatulence	6 (18,75%)	1 (3,12%)*	4 (13,33%)	2 (6,25%)*
Elevated gas formation	5 (15,62%)	3 (9,37%)*	6 (20,0%)	4 (13,33%)*

**Table 3:** Dynamics of dyspeptic syndrome changes in patients with manifestations of FND on the background of CP (n, %).

Note: \*the probability of a difference with the indicators before treatment (p<0.05).

The majority of patients in the main group (92.18%) after 14 days of treatment noted a significant improvement

in their general condition, which was manifested in increased work capacity, increased tolerance to physical exertion, and

improved mood.

The dynamics of changes in the dyspeptic syndrome in patients with CP in combination with the pathology of GDZ is presented in the Table 3. As can be seen from Table 3, patients of the main group have positive dynamics of this syndrome after the inclusion of itopride hydrochloride in comparison with patients who were on standard treatment.

In Table 4 the dynamics of the clinical symptoms of the pain syndrome depending on the localization, which was detected by palpation, are given. After a course of treatment, only 1 patient (3.12%) of the main group had palpable tenderness in the epigastric area, 2 (6.25%) - in the pyloroduodenal area ( $p < 0.05$ ). While these indicators are somewhat worse in the comparison group.

Localization of the pain syndrome	Basal group (n =32)		Comparison group (n =30)	
	Before treatment	After treatment	Before treatment	After treatment
Epigastric zone	8 (25,0)	1 (3,12)*,**	7 (23,33)	4 (13,3)*
Pyloroduodenal zone	5 (15,62)	2 (6,25)*,**	4 (13,3%)	3 (10,0)*
Soreness in several areas	12 (37,5)	2 (6,25)*,**	11 (36,66)	4 (13,33)*

**Table 4:** The dynamics of the clinical symptoms of the pain syndrome depending on the localization, which was detected by palpation in patients with manifestations of FND on the background of CP (n, %).

Note: \*probability of difference with indicators before treatment ( $p < 0.05$ ), \*\* - probability of difference with indicators of the comparison group ( $p < 0.05$ ).

Itopride hydrochloride is actively biotransformed in the liver. The primary metabolite is N-oxide, which is formed as a result of oxidation quaternary amino-N-dimethyl group, is metabolized under the action of flavin-dependent monooxygenase (FMO<sub>3</sub>), its metabolites are excreted mainly with urine. The amount and efficiency of FMO isozymes in humans may vary depending on genetic polymorphisms. According to the data of pharmacokinetic studies in vivo, itopride hydrochloride does not have an inhibitory or inducing effect on CYP2C19 and CYP2E1. The use of itopride hydrochloride does not affect the content of CYP or the activity of uridine diphosphate glucuronisyl transferase. Renal excretion of itopride hydrochloride and its N-oxide was 3.7% and 75.4%, respectively, after a single internal administration of the medicinal product to healthy volunteers in a therapeutic dose. The terminal T<sub>1/2</sub> of itopride hydrochloride was approximately 6 hours.

## Conclusions

Thus, when studying the clinical symptoms from the side of GD in patients with FND on the background of CP, in the

dynamics of treatment, a greater effectiveness was found in the group with the inclusion of itopride hydrochloride compared to standard treatment.

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