World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

GENDER AND REGIONAL CHARACTERISTICS OF PHARMACOEPIDEMIOLOGY OF POST-COVID-19 ASSOCIATED DIGESTIVE DISEASES

Mamasaliev N.S., Boltaboev A.M., Tursunov X.X., Mamasaliev Z. N ., Usmonov B.U., Boltaboeva D.I.
Andijan State Medical Institute Uzbekistan, Andijan

Article history:

Received: June 26th 2025
Accepted: July 24th 2025

Abstract:

The fact that the flow of studies and publications devoted to the Covid-19 pandemic has increased and continues to increase worldwide is evident from the literature review or the reader-researcher may conclude that this is an indication that there are still "mysteries" in the Covid-19 infection.

Among these problems, the issue of studying the epidemiology, prevention and radical improvement of treatment methods for Post-Covid-19-associated digestive system diseases is also a cross-cutting and acute medical and social problem.

Preventive gastroenterology has begun to develop and find its place in modern medicine, for example, in the case of the Post-Covid-19 population, and the scope of scientific and priority views on reasonable guidelines and recommendations for its improvement has increased.

They should be taken into account when determining the topics and directions of scientific research.

In our opinion, a very scientific and practical conclusion is drawn: the level of study of modern epidemiological, clinical, pharmacotherapeutic and prophylactic aspects of post-Covid-19 associated digestive system diseases does not meet the requirements. There is a need and a need to analyze and study the existing data from the perspective of preventive medicine.

There is a lack of scientific research on the development of radically improved programs for the prevention and treatment of post-Covid-19 associated digestive system diseases and their justification.

The expansion and implementation of such meaningful and targeted regional studies with an emphasis on them is of medical, social and economic importance.

Keywords: COVID-19, Post-Covid-19, associated digestive system diseases, epidemiology, prevention, treatment.

INTRODUCTION. Currently, there is very little information on the epidemiology, clinical features, prevention and treatment of Post-Covid-19 Associated Gastrointestinal Diseases (Post-Covid-19 Associated Gastrointestinal Diseases) and none at all in Uzbekistan and, in particular, in the Fergana Valley. According to the scientific results obtained in clinical trials, there is every reason to believe that patients with digestive system diseases may be a risk group for severe disease and unfavorable prognosis when infected with the SARS-CoV-2 virus. [1].

Post-Covid-19 Associated Gastrointestinal Diseases can occur in two ways: first, through the direct effect of the virus itself, and second, in connection with drug therapy used to treat coronavirus infection. Therefore, it is necessary to take into account that in this type of disease (which reaches 40%) there is an iatrogenic risk factor, which makes it more beneficial to seek treatment methods from natural and folk medicine.

The target cells that the SARS-Covid-2 virus can enter are located in the mucous membranes of the upper respiratory tract, stomach and intestines, through which the gastrointestinal tract (GI) is damaged by viral infection. In particular, getting into intestinal cells, the virus increases the permeability of the intestinal wall, and thus reaches the liver, where it also causes inflammation. Extrapulmonary manifestations of COVID-19 are observed and even prioritized by the corresponding GI: Post-COVID-19 Ass HAC "the most common symptoms" (fever, cough, shortness of breath, myalgia and fatigue) and "relatively less common symptoms" (loss of taste and smell, anorexia, diarrhea, nausea, vomiting, abdominal pain) are detected in 2/3 of infected patients; 50.5% of patients are hospitalized; Diarrhea occurs in every 3rd patient; vomiting and abdominal pain are noted in 3.9 and 3%, respectively; 25% of patients develop isolated gastrointestinal symptoms; gastrointestinal and respiratory symptoms

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

occur simultaneously in every 4th patient; diarrhea appears as the first symptom of COVID-19 in every 5th patient, lasts from 1 to 14 days, and the frequency of defecation reaches 4-6 times a day; as a sign of complete recovery from the disease, in such patients, it is necessary to take into account the negative virological analysis for SARS-COV-2 in the stool [2].

Early detection, prevention and safe treatment of this clinical manifestation in the post-COVID-19 Ass HAC population, which is characteristic of the shift from the traditional COVID-19 or Covid syndrome descriptions, is of great medical, economic and prognostic importance. Patients often present late and are diagnosed with Post-COVID-19 syndrome, which increases the incidence of mortality in the population. Therefore, it is advisable to conduct research in this area and, in particular, to prioritize epidemiological studies, which have a high potential for early detection of Covid-19 and/or POST-COVID-19 syndrome at the pre-nosodic stage, compared to clinical studies. To date, this scientific direction has not been widely implemented, and as a result, symptoms of damage to the digestive system in the new Covid-19/POST-COVID-19 are often overshadowed by respiratory symptoms and should not be ignored.

PURPOSE OF THE STUDY. The aim of the study is to study the epidemiology of POST-COV-19-associated digestive system diseases, to radically improve prevention and treatment methods.

MATERIAL AND METHODS

The object of the study was 1605 people aged ≥ 48-60 years who had experienced Covid-19 infection and were registered and monitored in Fergana city polyclinics in 2022-2024.

The subject of the study was the results of blood serum and special questionnaires (questionnaires) to conduct epidemiological, clinical, biochemical and physical analyzes of the Post-Covid-19 population, to determine the effectiveness of screening and prevention methods.

Research methods. The study used questionnaire, biochemical, general clinical, physical and statistical methods. Anthropometric measurements, which assessed serum lactate dehydrogenase, interleukin, S-reactive protein, lipid spectrum indicators, and the WHO (1997) criteria were used to analyze common risk factors.

RESULTS

The pharmacoepidemiology of Post-Covid-19 Ass HAK was studied for the first time in the valley conditions and a number of important pharmacocontrol-prophylactic features for pharmacoprophylaxis were identified.

In particular, the following features of Post-Covid-19 Ass HAK in women were identified and analyzed (Table 1 and Figure 1 provide information on this).

Pharmacotherapy is mainly carried out with two types of drugs - injectable drugs (nolpaza + sodium chloride, reosorbilcat) and oral drugs (paracetamol, simangal, duphalac, pancreatin, zinc, calcium DZ). They almost correspond to international standards, but the frequency of use varies. For example, injectable drugs are used with a frequency of 0.9% in esophageal diseases (EGD), 11.7% in gastric diseases (GD) comorbidity, 1.0% in duodenal ulcers (DDU), 19.6% in chronic diffuse liver diseases (CLD), 16.5% in chronic cholecystitis (CC), 9.0% in chronic (CTC) stomatitis, 22.2% in cardiorespiratory diseases (CRD), and 19.1% in neurological diseases (ND). Oral medications are approved for use in Post-Covid-19 Assoc HAC comorbidities with the following frequencies: 0.7% in CVD, 13.2% in OC, 3.1% in 12-HIV, 19.9% in SJDC, 18.8% in SC, 9.1% in ST, 21.2% in CRB, and 14.0% in NC. In comparison, the use of injectable medications is significantly higher, with nolpaza and

1 – table
Features of the pharmacoepidemiological description of post-Covid-19 AHAB in women

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	11	0,9	140	11,7	12	1,0	235	19,6	198	16,5	108	9,0	266	22,2	229	19,1	1199	100,0
1	Nolpase + Sodium Chloride	9	18,1	125	89,3	9	75,0	111	47,2	86	43,4	47	43,5	101	38,0	86	37,6	574	47,9
2	Reosorbilact	2	18,2	15	10,7	3	25,0	124	52,8	112	56,6	61	56,5	165	62,0	143	62,4	625	52,1

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

II.	Oral preparations:	19	0,7	356	13,2	84	3,1	536	19,9	507	18,8	246	9,1	570	21,2	377	14,0	2695	100,0
1	Paracetamol	2	10,5	85	23,9	3	3,6	39	7,3	14	2,8	12	4,9	179	31,4	152	40,3	486	18,0
2	Simangel	8	42,1	123	34,6	15	17,9	10	1,9	8	1,6	3	1,2	12	2,1	11	2,9	190	7,1
3	Dufalak	2	10,5	46	12,9	16	19,0	129	24,1	117	23,1	60	24,4	11	1,9	16	4,2	397	14,7
4	Pancreatin	1	5,3	75	21,1	15	17,9	124	23,1	123	24,3	52	21,1	9	1,6	11	2,9	410	15,2
5	Zinc	3	15,8	12	3,4	17	20,2	111	20,7	120	23,7	57	23,2	173	30,4	149	39,5	642	23,8
6	Calcium D3	3	15,8	15	4,2	18	21,4	123	22,9	125	24,7	62	25,2	186	32,6	38	10,1	570	21,2
Statistical indicators		RR=0.21; 95% ИИ=(0,84-0,05); χ^2= ; r++=1,857; P>0,05																	

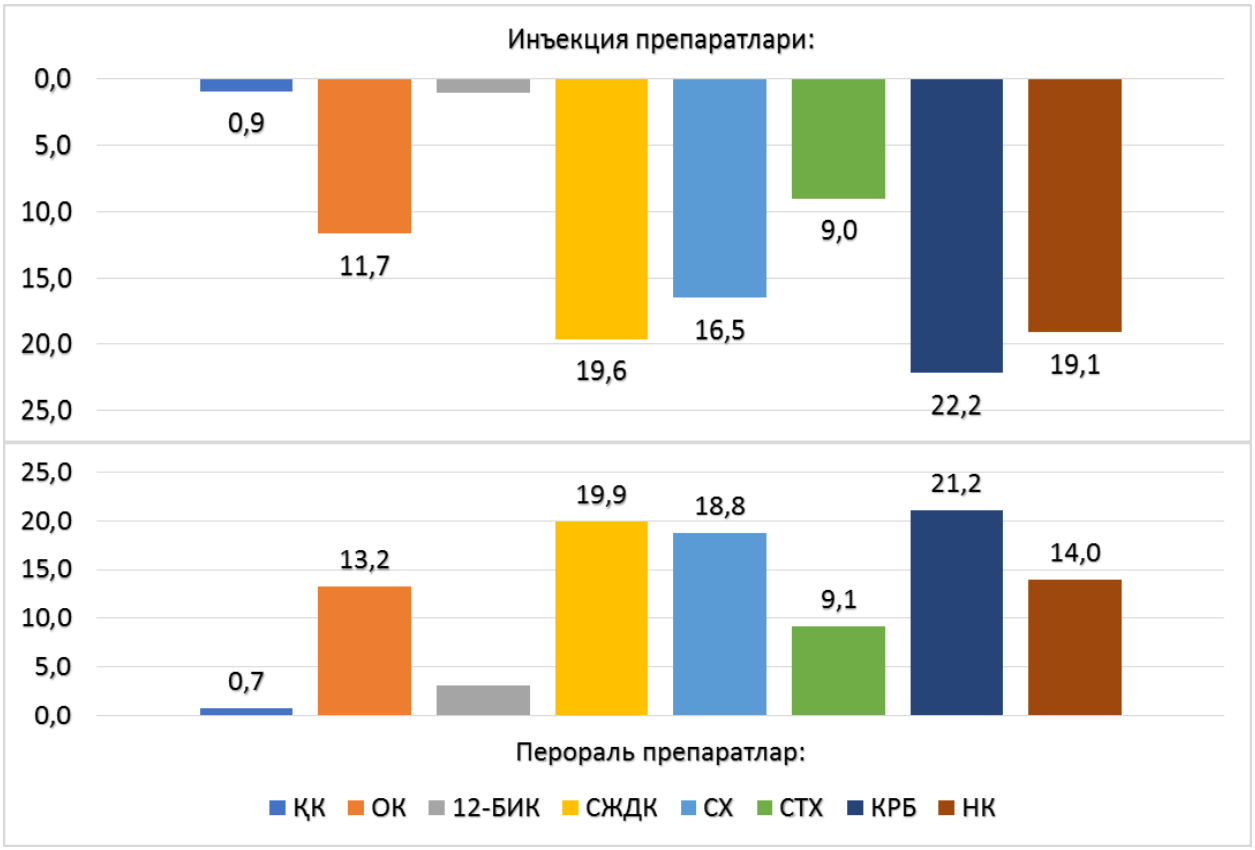


Figure 1. Expression of the pharmacoepidemiological profile of post-Covid-19 ACS in women

The frequency of use of reosorbilact is noted as follows: from 18.1% and 18.2% (R> 0.05) in JK, from 89.3% and 10.7% (R< 0.001) in OK, from 75.0% and 25.0% (R< 0.001) in 12 BIK, from 47.2% and 52.8% in SJDK (R> 0.05), SX from 43.4% and 56.6% (R> 0.05), STX from 43.5% and 56.5% (R> 0.05), KRB from 38.2% and 62.0%, NK from 37.6% and 62.4% (R> 0.05).

The frequency of use of various oral medications, in the Post-Covid-19 Assoc. Prof. Dr. A.M., is confirmed as follows: paracetamol 18.0% (10.5% in CK, 23.9% in OC, 3.6% in 12 BIC, 7.3% in SJDK, 2.8% in SC, 4.9% in STX, 31.4% in CRB and 40.3% in NC), simangel 7.1% (42.1% in CK, 34.6% in OC, 12 BIC – 17.9%, SJDK 1.9%, SC 1.6%, SC, 1.2% in STX, 2.1% in CRB and 2.9% in NC), duphalac 14.7% (10.5% in CK, 12.9% in OC, 12 19.0% in BIK, 24.1% in SJDK, 23.1% in SX, 24.4% in STX, 1.9% in KRB, 4.2% in NK), pancreatin 15.2% (5.3% in JK, 21.1% in OC, 12 BIK 17.9%, 23.1% in SJD, SX 24.3%, 21.2% in STX, 1.6% in KRB and 2.9% in NK), zinc 23.8% (15.8% in JK, 3.4% in OK, 20.2% in 12 BIK, SJDK 20.7%, SX 23.7%, STX 23.2%, KRB 30.4% and NK from 39.5 %), calcium DZ 21.2% (15.8% in VC, 4.2% in OC, 21.4% in 12 BIC, 22.9% in SJDK, 24.7% in SH, 25.2% in STX, 32.6% in CRB and 10.1% in NC). Pharmacotherapeutic compliance is confirmed by 87.8%, and the risk is 22.2% (P< 0.01).

The same analysis was conducted in men with Post-Covid-19 AHAB (2 - table and 2 - figure).

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

Almost similar pharmacoepidemiological characteristics are confirmed in the female population, in particular, the frequency of use of injectable drugs (nolpaza, reosorbilact) is 40.2% and 59.8%, respectively (P> 0.05). The use of oral drugs is observed and confirmed as follows: paracetamol 18.5% (8.0% in KK, 3.0% in OK, 7.5% in 12 BIK, 8.9% in SJDK, 3.7% in SX, 3.2% in STX, 37.3% in KRB and 41.4% in NK), simangel 11.8% (24.0% in JK, 40.3% in OK, 30.0% in 12 BIK, 5.4% in SJDK, 2.4% in SX, 1.8% in STX, 7.0% in KRB and 7.5% in NK), dufalak 15.9% (16.0% in JK, 6.8% in OK, 12 BIK 2.5%, 28.8 in SJDK %, 30.8 % in the SC,

2 – table
Pharmacoepidemiological characteristics of post-Covid-19 AHAB in men

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%	n	%
I.	Injection preparations:	11	0,9	221	18,4	15	1,3	281	23,5	159	13,3	153	12,8	232	19,4	126	10,5	1198	100,0
1	Nolpase + Sodium Chloride	6	15,1	201	91,0	10	66,7	105	37,4	59	37,1	68	44,4	18	7,76	14	11,1	481	40,2
2	Reosorbilact	5	45,5	20	9,0	5	33,3	176	62,6	100	62,9	85	55,6	214	92,2	112	88,9	717	59,8
II.	Oral preparations:	25	0,8	501	16,9	40	1,4	631	21,3	328	11,1	283	9,6	632	21,4	519	17,5	2959	100,0
1	Paracetamol	2	8	15	3,0	3	7,5	56	8,9	12	3,7	9	3,2	236	37,3	215	41,4	548	18,5
2	Simangel	6	24	202	40,3	12	30,0	34	5,4	8	2,4	5	1,8	44	7,0	39	7,5	350	11,8
3	Dufalak	4	16	34	6,8	1	2,5	182	28,8	101	30,8	87	30,7	36	5,7	25	4,8	470	15,9
4	Pancreatin	1	4	203	40,5	11	27,5	175	27,7	95	29,0	90	31,8	54	8,5	18	3,5	647	21,9
5	Zinc	5	20	45	9,0	12	30,0	183	29,0	110	33,5	89	31,4	258	40,8	217	41,8	919	31,1
6	Calcium D3	7	28	2	0,4	1	2,5	1	0,2	2	0,6	3	1,1	4	0,6	5	1,0	25	0,8
Statistical indicators		RR=0,21; 95% ИИ= (0,83-0,05); X^2=0,21 ; r++=0,011; P>0,05																	

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

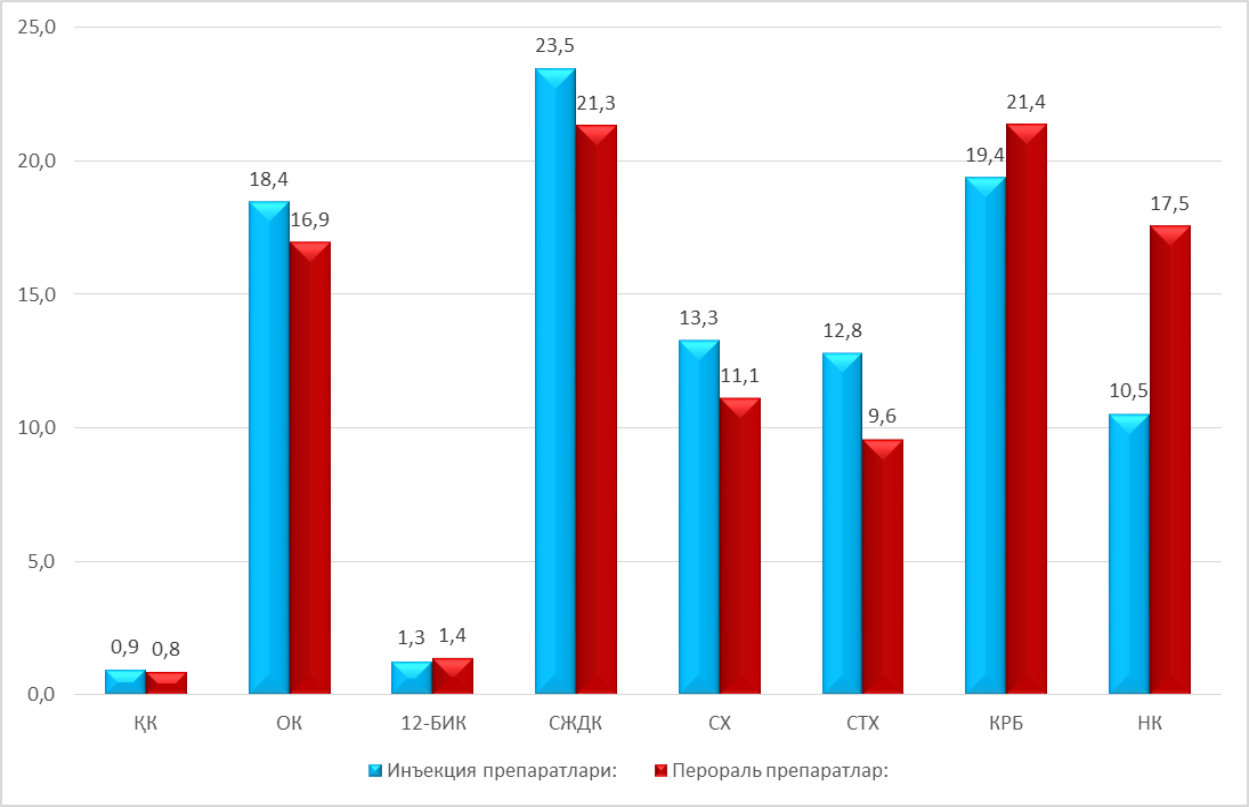


Figure 2. Pharmacoepidemiological characteristics of post-Covid-19 AKI in men

30.7% in STX, 5.7% in KRB and 4.8% in NK), pancreatin 21.9% (4.0% in JK, 40.5% in OK, 27.5% in 12 BIK, 27.7% in SJDK, 29.0% in SX, 31.8% in STX, 8.5% in KRB and NK from 3.5 %), zinc 31.1 % (from 20.0 % in JK, 9.0 % in OK, 30.0 % in 12 BIK, 29.0 % in SJDK, 33.5 % in SX, 31.4 % in STX, 40.8 % in KRB and 41.8 % in NK), calcium DE 0.8 % (28.0 in JK %, 0.4 % in OK, 2.5% in 12-month follow-up, 0.2% in SJDK, 0.6% in SC, 1.1% in STH, 0.6% in CRB and 1.0% in NC).

Pharmacotherapy compliance, in the context of Post-Covid-19, is 65.1% (100.0% for injectable drugs and 69.7% for oral drugs). In the male population, the pharmacoepidemiological risk is confirmed by the post-COVID state in CHD and by comorbid diseases, which is 34.9%.

Injectable drugs are confirmed with relatively high frequencies in the male population in OC, 12-month follow-up and chronic cholecystitis with calculous cholecystitis (91.0%, 66.7% and 44.0%, respectively).

The pharmacoepidemiological (PE) characteristics of post-Covid-19 AHF in Aboriginal populations are described in Table 3 and Figure 3.

The use of injection drugs, including the use of "nolpase + sodium chloride" and reosorbilact, is confirmed in the following frequencies: 0.9%, 19.3% and 18.8% (R> 0.05) in VC, 20.7%, 89.2% and 10.8% (R< 0.001) in OC, 1.6%, 92.6% and 12.6% in 12 BIK 7.4% (R< 0.001), SJDK 20.2%, 14.8% and 85.2% (R< 0.001), SX 14.6%, 17.7% and 82.3% (R< 0.001), STX 8.9%, 7.7% and 92.3% (R< 0.001), KRB 24.7%, 6.51% and 93.5% (P<0.001), in NC 98.4%, 14.4% and 85.6% (P<0.001), in total Post – Covid – 19 AHAG 100.0%, 29.7% and 70.3%. The use of oral drugs is confirmed at relatively low frequencies: in Post – Covid – 19 associated erythema multiforme diseases 0.6% (paracetamol 8.11%, simangel 40.5%, duphalac 10.8%, pancreatin 8.11%, zinc 27.0%, calcium DZ 5.41%), in stomach diseases 16.0% (paracetamol 2.0%, simangel 31.4%, duphalac 4.0%, pancreatin 34.4%,

3 – table

Pharmacoepidemiological characteristics of post-Covid-19 AHAB in an Aboriginal population

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB								
		ED	SD	12-DI	CDLD	ChCh	ChSCh	CRD	ND	Total Post-Covid-19A XAG

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	16	0,9	360	20,7	27	1,6	352	20,2	254	14,6	155	8,9	430	24,7	146	8,4	1740	100,0
1	Nolpase + Sodium Chloride	13	19,3	321	89,2	25	92,6	52	14,8	45	17,7	12	7,7	28	6,51	21	14,4	517	29,7
2	Reosorbilact	3	18,8	39	10,8	2	7,4	300	85,2	209	82,3	143	92,3	402	93,5	125	85,6	1223	70,3
II.	Oral preparations:	37	0,6	961	16,0	84	1,4	1173	19,5	867	14,4	567	9,4	1301	21,7	1016	16,9	6006	100,0
1	Paracetamol	3	8,11	19	2,0	8	9,5	19	1,6	12	1,4	7	1,2	402	30,9	372	36,6	842	14,0
2	Simangel	15	40,5	302	31,4	26	31,0	29	2,5	23	2,7	45	7,9	13	1,0	18	1,8	471	7,8
3	Dufalak	4	10,8	38	4,0	7	8,3	258	22,0	195	22,5	111	19,6	31	2,4	81	8,0	725	12,1
4	Pancreatin	3	8,11	331	34,4	23	27,4	267	22,8	207	23,9	136	24,0	31	2,4	41	4,0	1039	17,3
5	Zinc	10	27	240	25,0	17	20,2	299	25,5	228	26,3	142	25,0	419	32,2	356	35,0	1711	28,5
6	Calcium D3	2	5,41	31	3,2	3	3,6	301	25,7	202	23,3	126	22,2	405	31,1	148	14,6	1218	20,3
	Statistical indicators	**RR=1,01; 95% ИИ= (4,0-0,25); χ^2=96,78 ; r++=0,353; P<0,05**																	

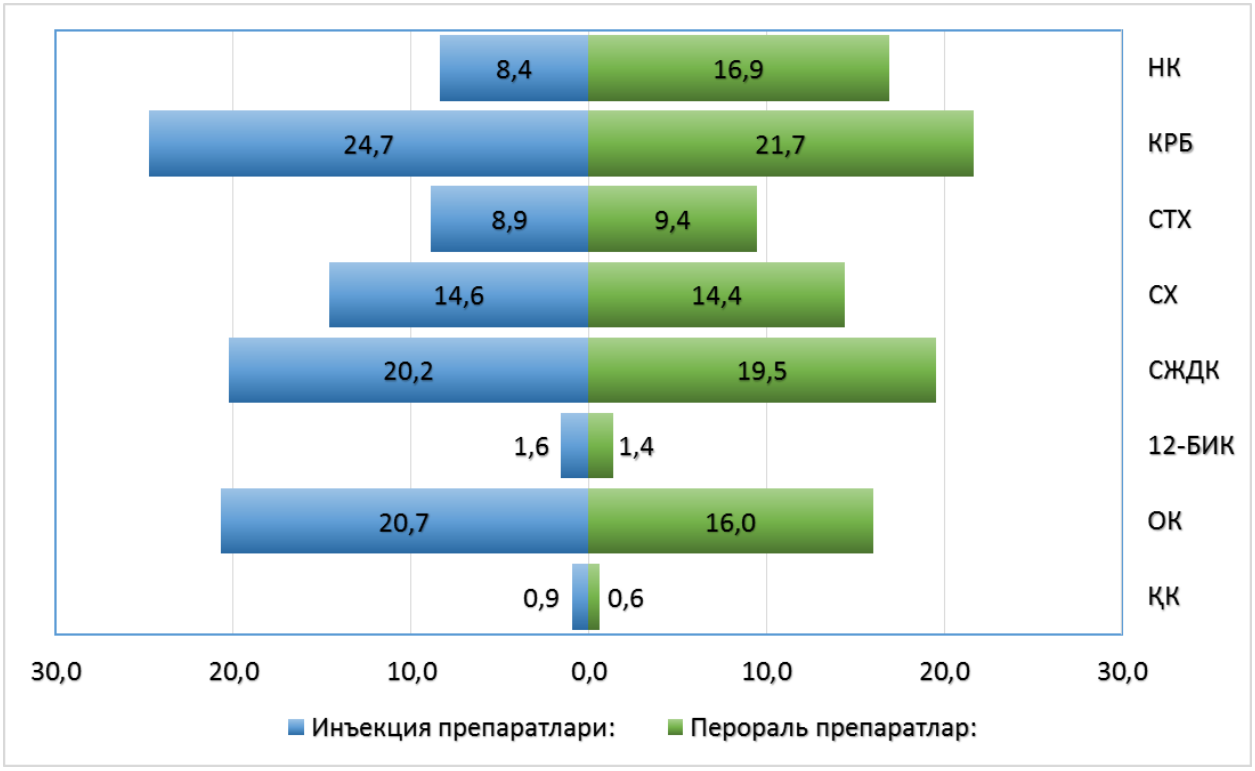


Figure 3. Expression of the pharmacoepidemiological profile of post-Covid-19 AHCC in an Aboriginal population

zinc 25.0%, calcium 3.2%), 1.4% in 12 BIK (paracetamol 9.5%, Simangel 31.0%, dufalak 8.3%, pancreatin 27.4%, zinc 20.2%, calcium DZ 3.6%), 19.5% in SJDK (paracetamol 1.6%, simangel 2.5%, dufalak 22.0%, pancreatin 22.8%, zinc 25.5%, calcium DZ 25.7%), 14.4% in SX (paracetamol 1.4%, simangel 2.4%, dufalak 22.5%, pancreatin 23.9%, zinc 26.3%, calcium DZ 23.3%), 9.4% in STX (paracetamol 1.2%, simangel 7.9%, dufalak 19.6%, pancreatin 24.0%, zinc 25.0%, calcium DZ 22.2%), in KRB 21.7% (paracetamol 30.9%, simangel 1.0%, dufalak 2.4%, pancreatin 2.4%,

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

zinc 32.2%, calcium DZ 31.1%), in NK 16.9% (paracetamol 36.6%, simangel 1.8%, dufalac 8.0%, pancreatin 4.0%, zinc 35.0%, calcium DZ 14.6%) and 100.0% in total Post – Covid – 19 AXAG (paracetamol 14.0%, simangel 7.8%, dufalac 12.1%, pancreatin 17.3%, zinc 28.5 %, calcium DZ 20.3 %).
The level of provision of standard pharmacotherapy is 89.2 % and the level of risk of PE in deviation from pharmacotherapy is 19.9 % [RR = 1.01; 95 % UU = 4.0 – 0.25; X2 = 96.78; r++ = 0.353; P> 0.005].
In the rural population, with Post – Covid – 19 AHAB, injection drugs ("nolpaza + sodium chloride", resorbilact) are used 100.0 % and the frequency of provision of standard pharmacotherapy with oral drugs is 77.1 %, the risk of PE in deviation from the standard is confirmed at 22.9 % [RR = 0.99; 95 % UU = 3.25 – 0.38; X2 = 41.12; r++ = 0.353; P> 0.005].
The analysis of such data is presented and presented in Table 4 and Figure 4.
According to the results obtained, injection drugs are used with a frequency of 100.0% in the urban population with Post-Covid-19 associated CHD, 32.9% are "Nolpaza + Sodium Chloride" and 67.1% are resorbilcat infusions (Table 5 and Figure 5).

Table 4
Pharmacoepidemiological characteristics of post-Covid-19 AHAB in rural population

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	6	0,8	153	19,7	9	1,2	156	20,1	140	18,1	82	10,6	177	22,8	52	6,7	775	100,0
1	Nolpase + Sodium Chloride	5	21,7	138	90,2	7	77,8	53	34,0	42	30,0	21	25,6	25	14,1	18	34,6	309	39,9
2	Reosorbilact	1	16,7	15	9,8	2	22,2	103	66,0	98	70,0	61	74,4	152	85,9	34	65,4	466	60,1
II.	Oral preparations:	14	0,5	405	15,8	25	1,0	489	19,1	522	20,4	249	9,7	524	20,4	337	13,1	2565	100,0
1	Paracetamol	2	14,3	14	3,5	3	12,0	45	9,2	24	4,6	3	1,2	151	28,8	105	31,2	347	13,5
2	Simangel	5	35,7	140	34,6	8	32,0	34	7,0	12	2,3	3	1,2	26	5,0	13	3,9	241	9,4
3	Dufalak	1	7,14	27	6,7	2	8,0	100	20,4	121	23,2	61	24,5	21	4,0	11	3,3	344	13,4
4	Pancreatin	2	14,3	139	34,3	7	28,0	105	21,5	122	23,4	63	25,3	12	2,3	15	4,5	465	18,1
5	Zinc	3	21,4	59	14,6	3	12,0	101	20,7	120	23,0	60	24,1	153	29,2	118	35,0	617	24,1
6	Calcium D3	1	7,14	26	6,4	2	8,0	104	21,3	123	23,6	59	23,7	161	30,7	75	22,3	551	21,5
Statistical indicators		**RR=0,99; 95% ИИ=(3,25-0,38); χ^2=41,12 ; r++=0,353; P<0,05**																	

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

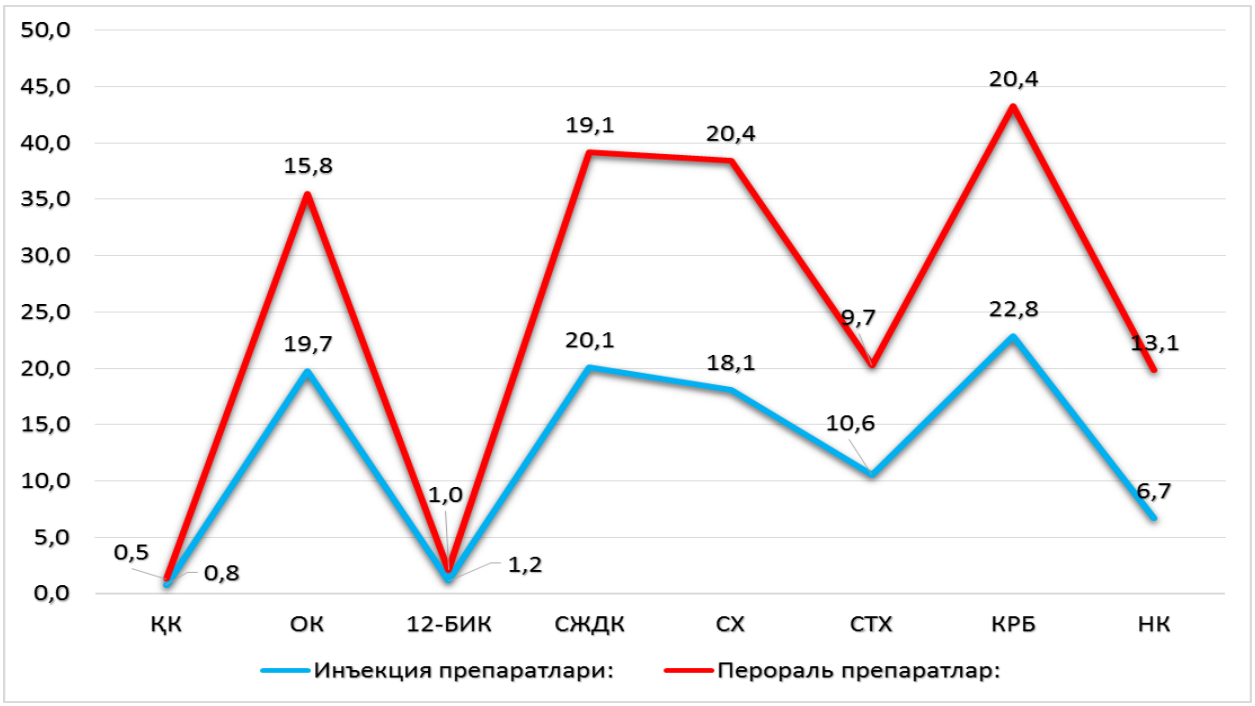


Figure 4. Representation of the pharmacoepidemiological characterization of Post-Covid-19 ACS in the rural population

5 – table
Features of the pharmacoepidemiological description of post-Covid-19 AHAB in the urban population

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	12	1,0	209	18,3	22	1,9	235	20,5	151	13,2	113	9,9	292	25,5	111	9,7	1145	100,0
1	Nolpase + Sodium Chloride	10	18,3	195	93,3	19	86,4	34	14,5	41	27,2	21	18,6	11	3,77	46	41,4	377	32,9
2	Reosorbilact	2	16,7	14	6,7	3	13,6	201	85,5	110	72,8	92	81,4	281	96,2	65	58,6	768	67,1
II.	Oral preparations:	24	0,6	532	13,4	63	1,6	861	21,8	482	12,2	389	9,8	924	23,4	682	17,2	3957	100,0
1	Paracetamol	1	4,17	23	4,3	3	4,8	15	1,7	17	3,5	8	2,1	278	30,1	247	36,2	592	15,0
2	Simangel	11	45,8	200	37,6	21	33,3	14	1,6	16	3,3	7	1,8	39	4,2	26	3,8	334	8,4
3	Dufalak	1	4,17	26	4,9	2	3,2	213	24,7	115	23,9	95	24,4	11	1,2	29	4,3	492	12,4
4	Pancreatin	3	12,5	187	35,2	20	31,7	198	23,0	116	24,1	96	24,7	34	3,7	31	4,5	685	17,3
5	Zinc	5	20,8	51	9,6	14	22,2	215	25,0	111	23,0	94	24,2	287	31,1	247	36,2	1024	25,9
6	Calcium D3	3	12,5	45	8,5	3	4,8	206	23,9	107	22,2	89	22,9	275	29,8	102	15,0	830	21,0
Statistical indicators		**RR=1,09; 95% ИИ= (2,33-0,52); χ^2=63,74 ; r++=0,353; P<0,05**																	

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

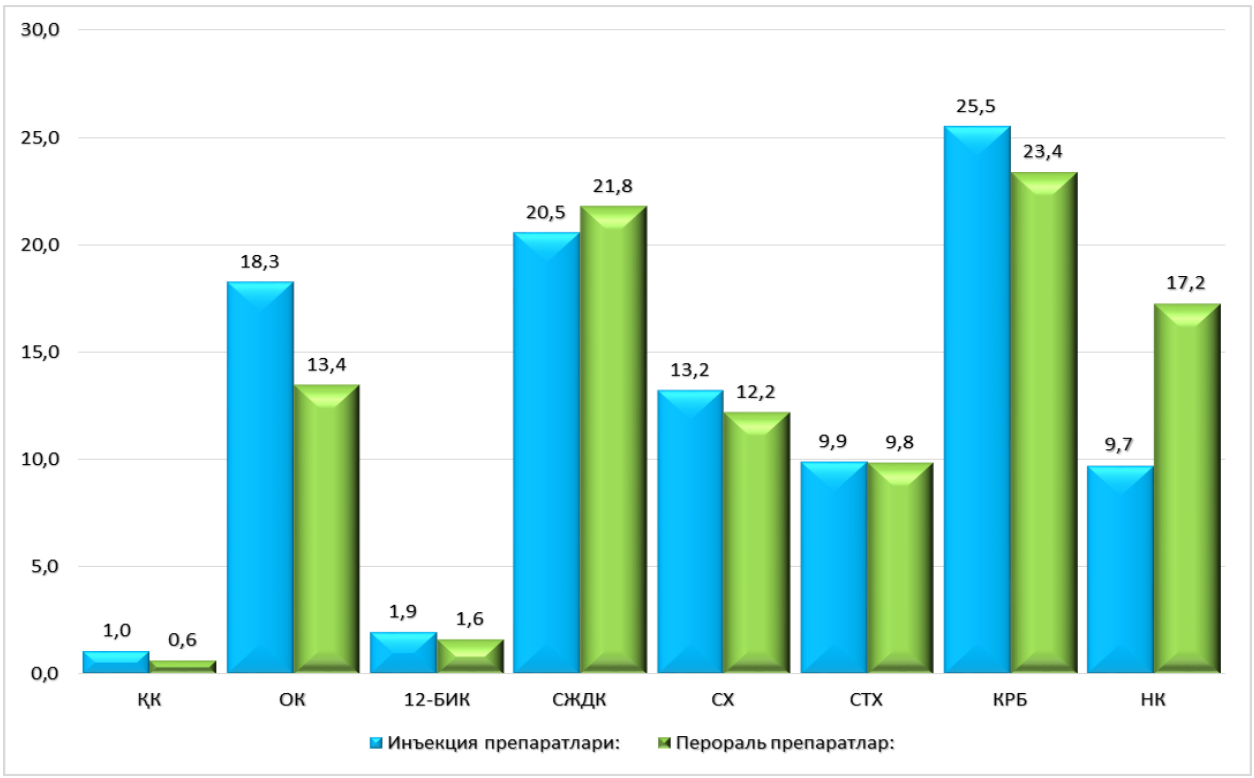


Figure 5. Representation of the pharmacoepidemiological description of post-Covid-19 ACS in the urban population

Oral drugs Post-Covid-19 are characterized by the following frequency of use in various forms of CKD, in the urban population: 0.61% in KK (paracetamol 4.17%, simangel 45.8%, dufalak 4.17%, pancreatin 12.5%, zinc 20.8%, calcium DZ 12.5%), 13.4% in OK (paracetamol 4.3%, simangel 37.6%, dufalak 4.9%, pancreatin 35.2%, zinc 9.6%, calcium DZ 8.5%), 1.6% in 12 BIK (paracetamol 4.8%, simangel 33.3%, dufalak 3.2%, pancreatin 31.7%, zinc 22.2%, calcium DZ from 4.8 %), in SJDK 21.8% (paracetamol 1.7%, simangel 1.6%, dufalak 24.7%, pancreatin 23.0%, zinc 25.0%, calcium DZ 23.9%), SX 12.2% (paracetamol 3.5%, simangel 3.3%, dufalak 23.9%, pancreatin 24.1%, zinc 23.0%, calcium DZ 22.2%), STX 9.8% (paracetamol 2.1%, simangel 1.8%, dufalk 24.4%, pancreatin 24.7%, zinc 24.2%, calcium DZ 22.9%), KrB 23.4% (paracetamol 30.1%, simangel 4.2%, dufalak 1.2%, pancreatin 3.7%, zinc 31.1%, calcium DZ 29.8%) and 17.2% in NC (paracetamol 36.2, simangel 3.8%, duphalac 4.3%, pancreatin 4.5%, zinc 36.2%, calcium DZ 15.0%).
In general, in the urban population, post-Covid-19 AHAC is confirmed with a frequency of 76.6%, oral drugs, according to the standards, and the risk factor for PE is 23.4%.
Table 6 shows the pharmacoepidemiological characteristics of post-Covid-19 AHAC in the population engaged in intellectual work.

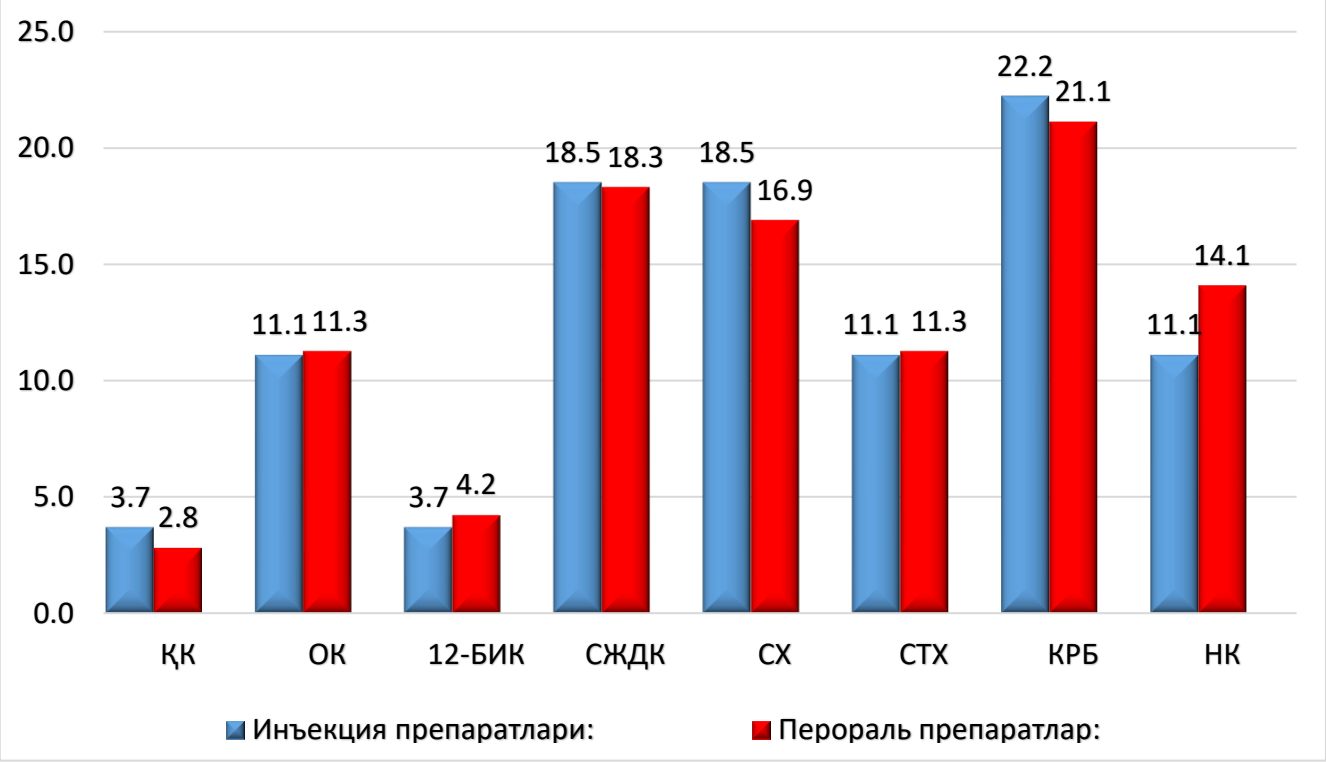
Table 6

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	1	3,7	3	11,1	1	3,7	5	18,5	5	18,5	3	11,1	6	22,2	3	11,1	27	100,0

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

1	Nolpase + Sodium Chloride	1	101	3	100,0	1	100,0	2	40,0	2	40,0	1	33,3	1	16,7	1	33,3	12	44,4
2	Reosorbilact	0	0	0	0,0	0	0,0	3	60,0	3	60,0	2	66,7	5	83,3	2	66,7	15	55,6
II.	Oral preparations:	2	2,8	8	11,3	3	4,2	13	18,3	12	16,9	8	11,3	15	21,1	10	14,1	71	100,0
1	Paracetamol	0	0	0	0,0	0	0,0	1	7,7	0	0,0	0	0,0	5	33,3	4	40,0	10	14,1
2	Simangel	1	50	3	37,5	1	33,3	0	0,0	0	0,0	0	0,0	0	0,0	0	0,0	5	7,0
3	Dufalak	0	0	0	0,0	0	0,0	3	23,1	3	25,0	2	25,0	0	0,0	0	0,0	8	11,3
4	Pancreatin	0	0	3	37,5	1	33,3	3	23,1	3	25,0	2	25,0	0	0,0	0	0,0	12	16,9
5	Zinc	1	50	2	25,0	1	33,3	3	23,1	3	25,0	2	25,0	5	33,3	4	40,0	21	29,6
6	Calcium D3	0	0	0	0,0	0	0,0	3	23,1	3	25,0	2	25,0	5	33,3	2	20,0	15	21,1
Statistical indicators		**RR=1,05; 95% ИИ= (2,25-0,95); χ^2=11,87 ; r++=0,845; P<0,05**																	

Pharmacoepidemiological characteristics of post-Covid-19 AHAP in the mentally ill population



World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

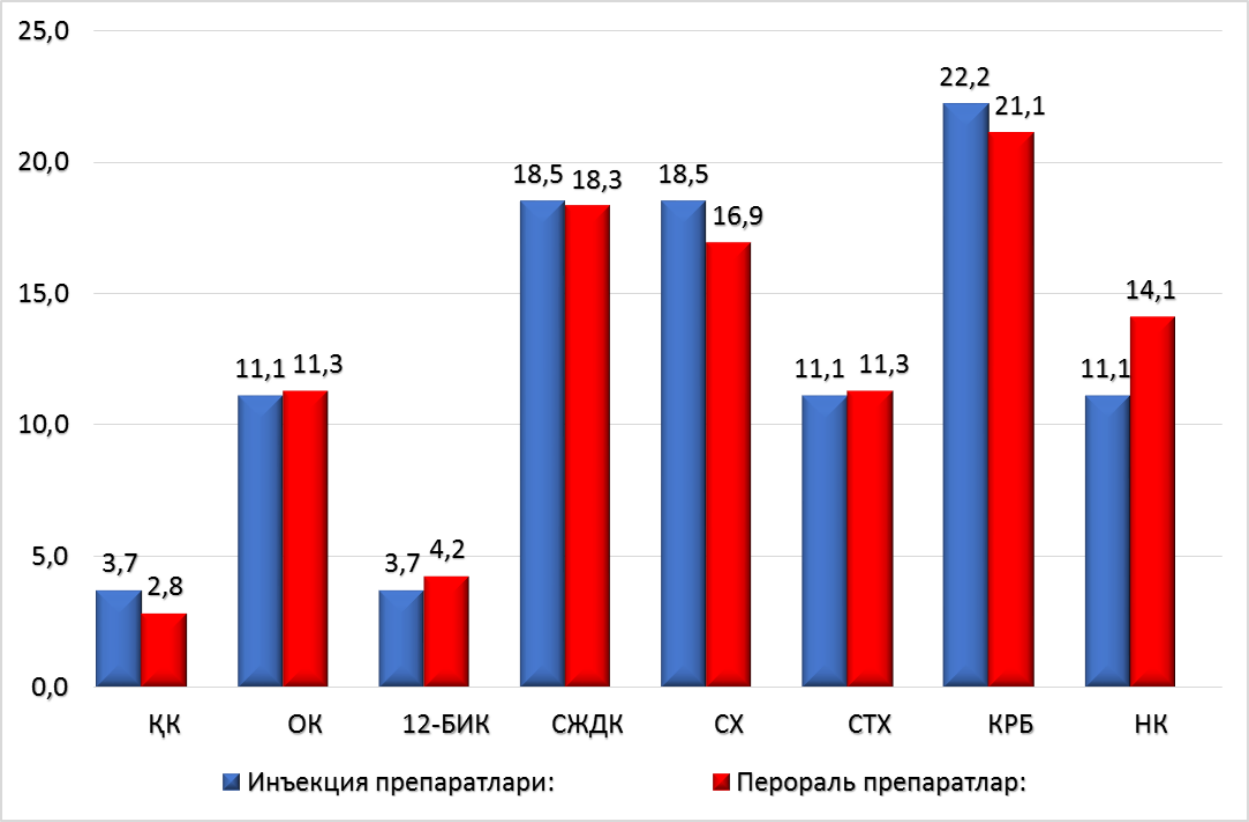


Figure 6. Representation of the pharmacoepidemiological characterization of post-Covid-19 ACS in the mental labor population

In post-Covid-19 types of ICU, injectable drugs (mainly nolpaza + reosorbilact) are used with the following frequencies: 3.7% in erythrocytic colitis, 11.1% in gastric ulcer, 3.7% in 12-cell carcinoma, 18.5% in chronic diffuse liver disease, chronic cholecystitis, 11.1% in CTC, 22.2% in CRB and 11.1% in NC. The frequency of use of nolpaza is 44.4% and the use of reosorbilact is 55.6% (P> 0.05).

The frequency of use of oral drugs is 2.8% in CKD. 11.3% in OC, 4.2% in 12 BIC, 18.3% in SJDK, 16.9% in SH, 11.1% in STX, 21.1% in CRB, 11.1% in NC. The most common post-COVID population is observed in chronic diffuse liver diseases and cardiorespiratory diseases with comorbidity [RR = 1.05; 95% UU = 2.25 - 0.95; X2 = 11.87; r++ = 0.845; P> 0.05].

Compliance of the pharmacological approach with international standards is 78.9%, non-compliance, that is, deviation from existing clinical international recommendations, is 21.1%. Pharmacoepidemiological risk factors associated with labor activity are confirmed in every fifth patient population in the population engaged in physical labor.

Table 7 and Figure 7 present the pharmacoepidemiological characteristics of Post-Covid-19 associated IBD in the physically active population (PW).

From them it is known that the following frequencies of the Post-Covid-19 types of AHAK injections, nolpaza and reosorbilact assoan, were used in the JMA group: 1.0%, 21.3% and 6.25% in KV (P<0.001), 21.8%, 95.6% and 4.4% in OC (P<0.001), 12 BIC 1.9%, 90.0% and 10.0% (P<0.01), SZHDK 20.9%, 9.4% and 90.6% (P<0.01), 15.6%, 9.3% and 90.7% in SH (P<0.001), 9.4%, 10.1% and 89.9% in STX (P<0.001) 0.001), CRB 26.9%, 4.94% and 95.1% (P<0.001), total Post – Covid – 19 AHAK 100.0%, 30.0% and 70.0% (P<0.01).

The frequency of use of oral drugs is confirmed as follows (oral drugs and pharmacoepidemiological directions): 1) 0.5% in KV (paracetamol 7.69%, simangel 53.8%, duphalac 7.69%, pancreatin 3.85%, zinc 19.2%, calcium DZ 7.69%); 2) 12.3% in OC (paracetamol 1.8%, simangel 44.0%, dufalak 2.5%, pancreatin 42.3%, zinc 6.3%, calcium DZ 3.0%); 3) 1.2% in 12 BNK (from paracetamol 5.8%, simangel 34.8%, dufalak 4.3%, pancreatin 40.6%, zinc 13.0%, calcium DZ 1.4%); 4) 21.9% in SJDK (paracetamol 1.4%, simangel 0.8%, dufalak 25.2%, pancreatin

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

Table 7.
Pharmacoepidemiological characteristics of post-Covid-19A HAC in the physically active population

№	Pharmacopoeia directions	PostTypes of Post-Covid-19A XAB																	
		ED		SD		12-DI		CDLD		ChCh		ChSCh		CRD		ND		Total Post-Covid-19A XAG	
		n	%	n	%	n	%	n	%	n	%	n	n	%	n	%	n	%	n
I.	Injection preparations:	16	1,0	344	21,8	30	1,9	330	20,9	246	15,6	149	9,4	425	26,9	37	2,3	1577	100,0
1	Nolpase + Sodium Chloride	15	21,3	329	95,6	27	90,0	31	9,4	23	9,3	15	10,1	21	4,94	12	32,4	473	30,0
2	Reosorbilact	1	6,25	15	4,4	3	10,0	299	90,6	223	90,7	134	89,9	404	95,1	25	67,6	1104	70,0
II.	Oral preparations:	26	0,5	709	12,3	69	1,2	1256	21,9	938	16,3	615	10,7	1347	23,5	783	13,6	5743	100,0
1	Paracetamol	2	7,69	13	1,8	4	5,8	18	1,4	21	2,2	11	1,8	400	29,7	390	49,8	859	15,0
2	Simangel	14	53,8	312	44,0	24	34,8	10	0,8	26	2,8	8	1,3	16	1,2	14	1,8	424	7,4
3	Dufalak	2	7,69	18	2,5	3	4,3	316	25,2	237	25,3	157	25,5	8	0,6	7	0,9	748	13,0
4	Pancreatin	1	3,85	300	42,3	28	40,6	311	24,8	222	23,7	155	25,2	19	1,4	15	1,9	1051	18,3
5	Zinc	5	19,2	45	6,3	9	13,0	302	24,0	213	22,7	149	24,2	451	33,5	323	41,3	1497	26,1
6	Calcium D3	2	7,69	21	3,0	1	1,4	299	23,8	219	23,3	135	22,0	453	33,6	34	4,3	1164	20,3
	Statistical indicators	**RR=1,08; 95% ИИ= (1,29-0,95); χ^2=91,46 ; r++=0,69; P<0,05**																	

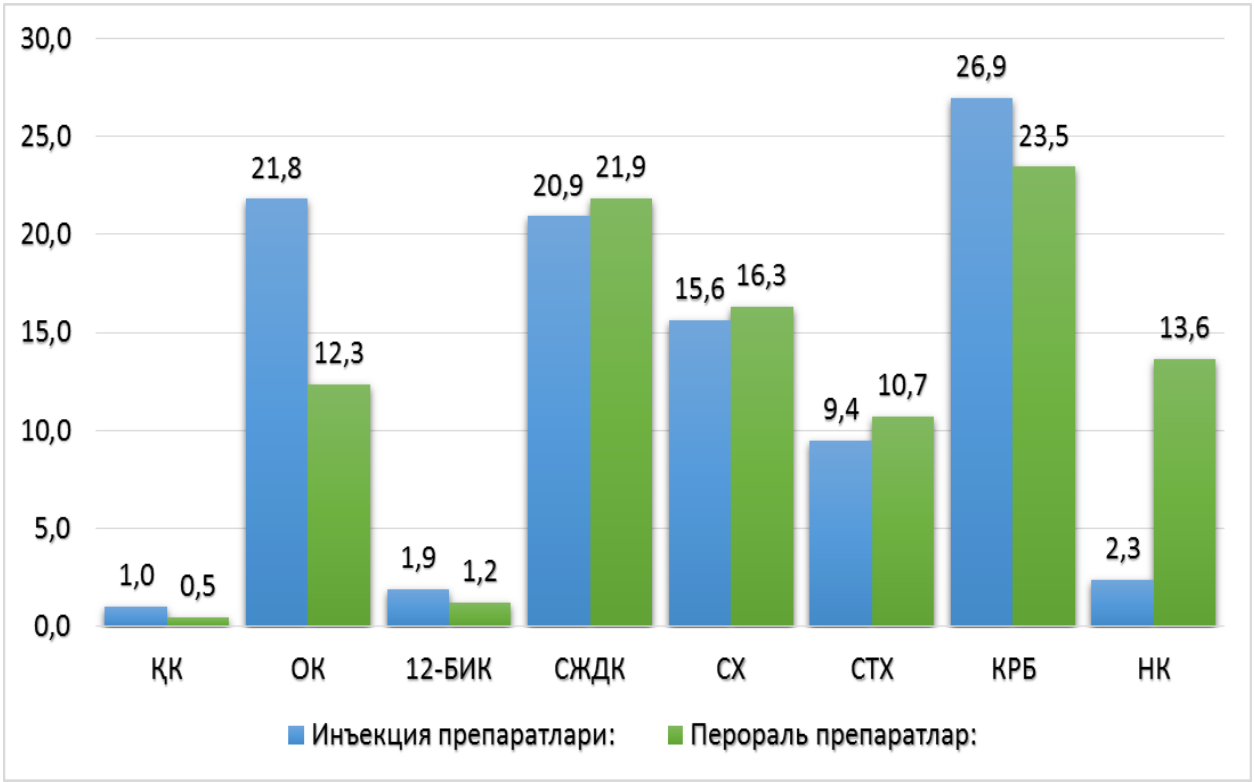


Figure 7. Representation of the pharmacoepidemiological characterization of post-Covid-19 ACS in the mental labor population

World Bulletin of Public Health (WBPH)
Available Online at: https://www.scholarexpress.net
Volume-48 July 2025
ISSN: 2749-3644

24.8%, zinc 24.0%, calcium DZ from 23.8%); 5) 16.3% in SX (paracetamol 2.2%, simangel 2.8%, dufalak 25.3%, pancreatin 23.7%, zinc 22.7%, calcium DZ 23.3%); 6) 10.7% in STX (paracetamol 1.8%, simangel 1.3%, dufalak 25.5%, pancreatin 255.2%, zinc 24.2%, calcium DZ 22.0%); 7) 23.5% in KrB (paracetamol 29.7%, simangel 1.2%, dufalak 0.6%, pancreatin 1.4%, zinc 33.5%, calcium DZ 33.6%); 8) 13.6% in NC (paracetamol 49.8%, simangel 1.8%, duphalac 0.9%, pancreatin 1.9%, zinc 41.3%, calcium DZ 4.3%).

The total prevalence of oral medication use in Post-Covid-19 AHAG is as follows: paracetamol 15.0%, simangel 7.4%, duphalac 13.0%, pancreatin 18.3%, zinc 26.1% and calcium DZ 20.3%.

In the population of the GMA, the treatment and pharmacoepidemiological compliance of Post-Covid-19 AHAG is 88.8%, and the level of deviation from standard recommendations is 22.4%.

The pharmacoepidemiological risk factor is confirmed by a prevalence of 22.4% in the GMA group, and therefore, the risk in more than one in five patients can be prevented or eliminated by ensuring the "endpoints of epidemiological surveillance" and an appropriate pharmacovigilance system. In conclusion: A program for radically improving the pharmacoepidemiology, prevention and treatment of post-Covid-19 associated gastrointestinal diseases can be created based on screening approaches, or this was achieved in this study. Analytical considerations about them are presented in the next chapter.

CONCLUSION

In the conditions of the Fergana region, various manifestations of Post-Covid-19 associated digestive system diseases are expressed as follows and are determined by the frequency of distribution: symptoms specific to esophageal diseases 1.7%, symptoms specific to gastrointestinal diseases 34.6%, symptoms specific to duodenal diseases 3.2%, symptoms specific to chronic diffuse liver diseases 32.6%, symptoms specific to chronic cholecystitis 25.3%, symptoms specific to chronic calculous cholecystitis 16.4%, symptoms specific to cardiorespiratory disorders 46.5% and symptoms specific to nephrological diseases 39.9%.

LIST OF REFERENCES USED

1. WHO, 2020; Xi K. et al; 2020: Drapkina O.M va b.q., 2021
2. Drapkina O.M., Maev. I.V va b.q., 2020: Anand ER et al; 2020: Cheing K. et al 2020: Hajifathalian K. et al 2020
3. Арутюнов Г.П., Тарловская Е.И., Арутюнов А.Г. и др. Международный регистр «Анализ динамики коморбидных заболеваний у пациентов, перенесших инфицирование SARS-CoV-2 (АКТИВ SARS-CoV-2)». Кардиология. 2020;60(11):30-34.
4. Барановский А.Ю., Беляев А.М., Кондрашина Э.А. По-казатели заболеваемости и смертности от болезней органов пищеварения в СЗФО России и меры, принимаемые по их снижению. Рос. журн. гастроэнтерологии, гепатологии, колопроктологии. 2019;29(1):36-46.
5. Схиртладзе М.Р., Тимофеева А.А., Буеверова Е.Л. и др.Боль в животе как первое проявление новой коронавирусной инфекции COVID-19. Российский журнал гастроэнтерологии, гепатологии, колопроктологии. 2020;30(6):57-62. https://doi.org/10.22416/1382-4376-2020-30-6-57-62.
6. Топчий Т.Б., Минушкин О.Н. Эпидемиология хронического гас-трита и некоторые лечебные подходы. Мед. алфавит. Практ. гастроэнтерология. 2016;4(34):5-11.
7. Циммерман Я.С. Язвенная болезнь: критический анализ совре-менного состояния проблемы. Эксперим. и клин. гастроэнте-рология. 2018;149(1):80-9.
8. Шевченко С.С., Тихонова Н.К., Левина И.С. ва в.қ. Мнение студентов о профилактике Covid – 19 // Профилактическая медицина. – 2024. – Т. 27 - №1. – С. 45 – 49.
9. Шептулин А.А. Диарея у пациентов с инфекцией COVID-19. Российский журнал гастроэнтерологии, гепатологии, колопроктологии. 2020; 30(6):51-56. https://doi.org/10.22416/1382-4376-2020-30-6-51-56.
10. Abbasi J. Younger Adults Caught in Covid – 19 Crosshairs as Demographics Shift. JAMA. 2020;324(21):2141 – 2143. https://doi.org/10.1001 /jama.2020.21913.