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SPECIFIC ASPECTS OF THE EPIDEMIOLOGY OF DEGENERATIVE INJURIES OF THE SPINE IN THE FERGANA VALLEY

Mirzajonov A. Sh.,
Mamasoliev N. S.,
Mamasoliev Z. N.,
Kalandarov D. M.,
Usmanov B.U.
Andijan State Medical Institute and the Andijan Branch of the Republican Scientific Center for Emergency Medical Care

Abstract:

The scientific value of the research results suggested suggestions and conclusions is that the epidemiological information provided to all levels of health care (medical brigade, general practitioners, family and polyclinic doctors, traumatology and neurosurgery inpatients/centers, meteorology centers, emergency, and ambulance research centers) – the clinical approach helps to understand the nature of degenerative spine damage and/or adaptation to it. On the scale of the regions of Uzbekistan, this causes or leads to the development and implementation of early safe detection, treatment, and prognosis of the disease, as well as the development and implementation of regional-specific complex preventive-prophylactic programs.

Keywords:

Chronic non-infectious diseases, pathologies of degenerative damage to the spine, degenerative damage to the spine, spinal cord injury, intervertebral disc herniation..

Introduction

Relevance and necessity of the dissertation topic. According to the World Health Organization, one of the important socio-medical trends of the 21st century is the "resurgence of chronic non-infectious diseases", including the pathology of degenerative injuries of the musculoskeletal system and spine [WHO, 2020].

The analysis of the literature shows that in the modern world, the structure of the musculoskeletal system undergoes a process that is observed in the escalating changes, first of all, in the hyaline tissue of the intervertebral discs (often in the lumbar region) and the hyaline tissue of large joints (knee, hip, shoulder), which often leads to the development of UDS [1, p. 61-63; 4, p. 41].

90% of older people are diagnosed with 3 chronic diseases and 4 or more comorbidities, comorbidities prolong patients' stay in treatment facilities, hinder rehabilitation, increase the risk of thromboembolic and other complications, disability, and death [8, p. 138].

The documents established by the WHO state the following: conventional "medical medicine" is not in a position to improve public health, but only to improve diagnosis and treatment. UDS does not have a preventive effect on the formation mechanisms - it does not reduce the risk factors for the development of the disease, morbidity, and mortality. In such cases, the main strategic direction should be primary prevention, general somatic pathology, and the study of UDS among the population without the disease.

In the bright clinical practice of neurosurgery, heterogenetic pain syndrome is encountered in the late stage of cerebral palsy (CP) in children. At the same time, the disease is often torpid, and long-term conservative treatment is the basis. In severe degenerative changes, surgical interventions, including removal of spinal cord hernia or decompression, are performed late.

According to the literature of the first 10 years of the 21st century, the WHO called the "musculoskeletal decade", and the diseases of the musculoskeletal system, first of all, the most common of them, UDS, attracted the attention of researchers. Today, since UDS is studied as an interdisciplinary problem, approximately 80% of all patients diagnosed with diseases of the musculoskeletal system are specific forms of UDP, all patients have more than one somatic pathology, and the prevalence of this indicator increases to 50% [6, p. 89-91].

Level of study of the problem. There is a need and need to scientifically study the mechanism of development of UDP among different ethnic groups of the population and/or in different climatic geographical regions with the calculation of the main risk factors.

In this regard, among the representatives of the Fergana region of Uzbekistan, the development of regional strategic directions for the early detection of UDP, the optimization of screening methods, and the development and implementation of effective programs for the prevention of this disease are undoubtedly of interest.

As with other areas of neurosurgery, many other areas have been developed to minimize tissue damage. The improvement of optical fiber equipment allowed a new stage of spine surgery - endoscopic removal of intervertebral disc herniation (UDCh), which made it possible to perform minimally invasive interventions [Basankin IV et al., 2020].

However, according to the analysis of the results of the modern examination, the preventive aspects of neurosurgery remain "as if out of the game" and lag behind clinical and/or fundamental neurosurgery achievements to date [Konovalov N.A. et al., 2016].

A logical conclusion can be drawn from this that no modern highly specialized and advanced neurosurgery technology is capable of resisting the UDP pandemic. Today, degenerative-dystrophic diseases of the spine have reached the level of a pandemic [Kirienko AN, et al., 2015].

The pharmacoepidemiology of degenerative damage was first assessed and studied in the conditions of the Fergana Valley of the Republic of Uzbekistan. Based on epidemiological and clinical research, the program and regional algorithm for the prevention, early detection, and treatment of degenerative spine injuries were developed for the first time.

The purpose of the study is to develop a regional strategic direction of optimization of methods of early detection, treatment, and prevention of degenerative spine damage in the Fergana Valley of the Republic of Uzbekistan based on epidemiological and clinical research.

Research tasks :

- Epidemiological investigation of degenerative spine damage and its risk factors among the 18-75-year-old population living in the conditions of Fergana Valley using the standardized methods of WHO;
- Determination and study of the prevalence of degenerative lesions among representative groups of women and men in the Fergana Valley;
- Determining and studying the prevalence of risk factors for degenerative spinal cord injury in the conditions of the Fergana Valley;
- Assessment and study of the correlation of risk factors with degenerative spinal cord injury;
- To study the structure and prevalence of comorbid conditions in the population of patients aged 18 and older with degenerative spine injuries in a rural multidisciplinary emergency hospital;
- Analyzing and summarizing the results of minimally invasive surgery in the conditions of the Andijan branch of the Urgent and Urgent Care Center, evaluating the characteristics of the transition of surgical treatment tactics to the use of minimally invasive technologies;
- Assessment and study of pharmacoepidemiology of degenerative spinal cord injury;
- Development of an algorithm for the prevention, early detection, and treatment of degenerative spine injuries (in the example of the Uzbek population).

The subject of research. Blood and blood serum of patients were used for general clinical and biochemical tests to achieve the set goal and perform the tasks.

Research methods. Epidemiological, questionnaire, general clinical, biochemical, instrumental, and special as well as pharmacoepidemiological methods were used.

Reliability of research results. The reliability of the obtained results is determined by the methodological correctness of the research, the use of theoretical-predictive and practical preventive-prophylactic approaches, the observation of sufficient population patients, the duration and volume of the examination, the modernity of the examination methods used, the questionnaire-epidemiological, biochemical-laboratory and clinical-instrumental methods used in the research. based on the fact that one complements the other, the conclusion and the obtained results are confirmed by competent organizations.

Scientific and practical significance of research results. The scientific value of the research results, suggested suggestions and conclusions is that the epidemiological information provided to all levels of health care (medical brigade, general practitioners, family and polyclinic doctors,

traumatology and neurosurgery inpatients/centers, meteorology centers, emergency, and ambulance research centers) – the clinical approach helps to understand the nature of degenerative spine damage and/or adaptation to it. On the scale of the regions of Uzbekistan, this causes or leads to the development and implementation of early safe detection, treatment, and forecasting of the disease, as well as the development and implementation of regional-specific complex preventive-prophylactic programs.

Material and methods. A 21-year (2000-2020) retrospective epidemiological study was conducted in Andijan. Its object was the population of residents who underwent a course of treatment in the departments of the Andijan branch of the Republican Emergency Medical Research Center.).

A total of 2994 patients with UDS were comprehensively studied in the prospective epidemiological-clinical study of 2000-2020. 1241 of them (41.1%) were men and 1753 (58.9%) were women.

Criteria for clinical-epidemiological monitoring: the population with a proven diagnosis of UDS of various genesis and nature.

Of degenerative spine injuries in the population of adolescents and adults living in the conditions of the Fergana Valley.

The statistical processing of the 21-year epidemiological monitoring data showed logically scientific and practically significant results for the first time in the population of the valley about UDS. They confirmed the epidemiological conditions related to UDS. For example, the population ≤20 years old and ≥ 20-75 years old showed a description of the prevalence of UDS and the 21-year trend depending on the ethnic characteristics (presented in Table 1 and Figure 1).

According to the 21-year epidemiologic description, degenerative spine injury is confirmed with a high frequency (70.4%) in the inpatient population (SShBP). The 21-year trend, in this population, is represented by a change from 68.5% to 97.0% and/or an increase in UDSH by 28.5% [x^2 =2.597; C=0.029; RR=0.957; 95% Cl=0.910-1.008; P>0.05].

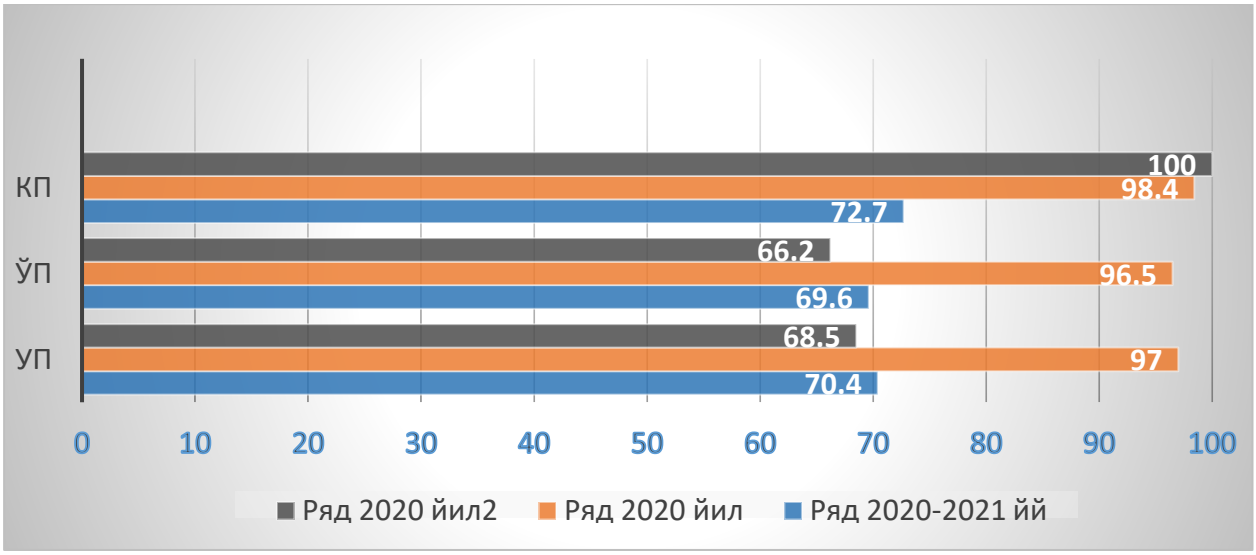
In the sedentary aboriginal population, the prevalence is 69.6%, and during the observation period it is recorded from 66.2% to 96.5%, that is, with a "growth" rate of 30.3% (P<0.05). In foreign populations, "epidemiological increase frequency" is not observed, on the contrary, the detection rate of UAS is more than 100.0% (indicator in 2000).

1 – table Prevalence and 21-year trends of degenerative spinal cord injury in a resident and immigrant population

Years	Sedentary population			P	Alien Population			General population		
	N	UDSh			N	UDSh		N	UDSh	
		n	%			n	%		n	%
2000	139	92	66.2	<0.05	10	10	100.0	149	102	68.5
2001	103	67	65.0	>0.05	6	6	100.0	109	73	67.0
2002	65	65	100.0	<0.001	12	7	58.3	77	72	93.5
2003	46	46	100.0	<0.001	16	5	31.3	62	51	82.3

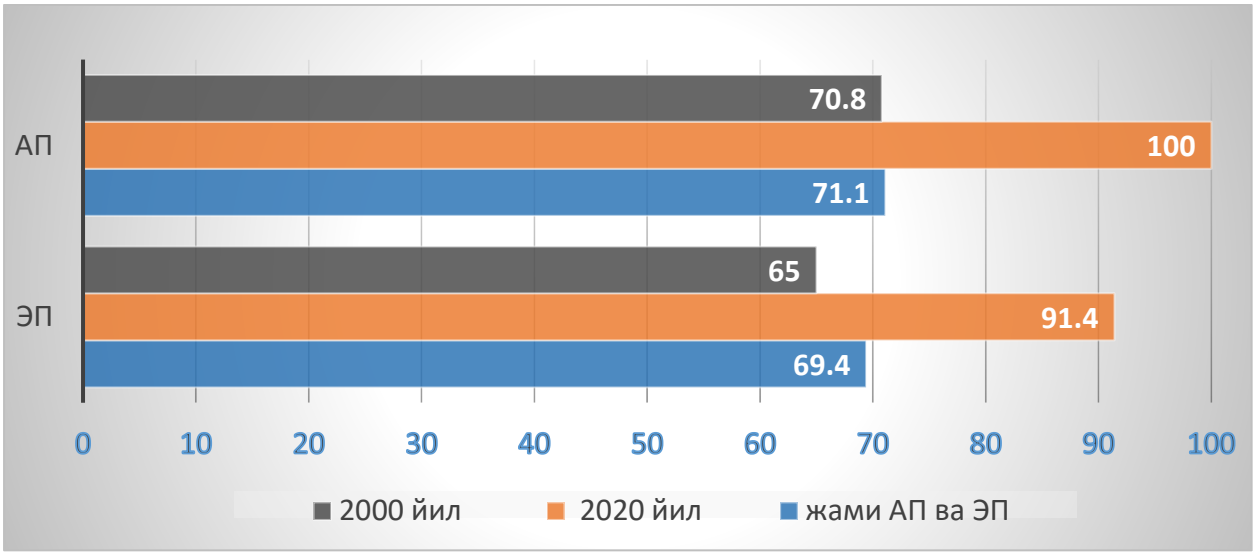
2004	50	50	100.0	<0.001	16	5	31.3	66	55	83.3
2005	59	59	100.0	<0.001	14	3	21.4	73	62	84.9
2006	39	39	100.0	<0.001	14	2	14.3	53	41	77.4
2007	57	57	100.0	<0.001	16	4	25.0	73	61	83.6
2008	65	45	69.2	<0.05	16	4	25.0	81	49	60.5
2009	129	42	32.6	>0.05	36	7	19.4	165	49	29.7
2010	109	27	24.8	<0.05	23	11	47.8	132	38	28.8
2011	133	45	33.8	<0.001	61	44	72.1	194	89	45.9
2012	114	61	53.5	<0.001	96	96	100.0	210	157	74.8
2013	72	29	40.3	<0.001	56	39	69.6	128	68	53.1
2014	84	57	67.9	<0.001	133	123	92.5	217	180	82.9
2015	118	91	77.1	>0.05	63	46	73.0	181	137	75.7
2016	121	74	61.2	<0.05	22	21	95.5	143	95	66.4
2017	199	133	66.8	<0.05	21	20	95.2	220	153	69.5
2018	169	124	73.4	>0.05	27	21	77.8	196	145	74.0
2019	176	176	100.0	<0.001	57	30	52.6	233	206	88.4
2020	171	165	96.5	>0.05	61	60	98.4	232	225	97.0
Total	2218	1544	69.6	>0.05	776	564	72.7	2994	2108	70.4

$\chi^2 = 2.597$
S = 0.029
RR = 0.957
95% CI = 0.910 - 1.008
P >0.05



Note: UP – general population, O'P – sedentary population, KP – immigrant population

1 – picture. Ethnic characteristics of the epidemiologic description of UDS



2 – picture. Gender characteristics of the epidemiological description of UDS

It is observed with a decrease to 98.4%. In general, the average frequency of confirmation of UDS in the immigrant population for 21 years is 72.7%, or it is significantly different from the indicator of the resident population with a frequency of 3.1 (P>0.05).

21-year UDS changes were studied and evaluated in both male and female populations (described in Table 2 and Figure 2).

The 21-year trend proved that UDS in the male population is determined at a prevalence of 69.4%, during the period of epidmonitoring - it shows a growth rate from 65.0% to 91.4%, or a 1.3-fold increase is confirmed. In the female population, it is observed with a significantly higher prevalence (71.1%), and the 21-year change in UDSH shows an increase in frequency from 70.8% to 100.0% (that is, an increase with a difference of 29.2%) [x^2 =1.075; C=0.019; RR=0.975; 95% Cl=0.930-1.022; P>0.05].

Table 3 and Figure 3 describe the prevalence of degenerative spine injuries and the characteristics of the 21-year trend in urban and rural populations.

The average 21-year detection frequency of UDSh does not differ significantly in the rural and urban population, with a prevalence of 70.1% and 71.2% [x^2 =0.353; C=0.011; RR=0.984; 95% Cl=0.936-1.035; P>0.05].

And, according to our analysis, a specific epidemiological trend is noticeable: until 2009, there was a decrease in UDS in rural conditions compared to urban conditions, and in the following years - it was observed that it "grew up to them".

The 21-year prevalence frequency of UDS is expressed by changes in the rural and urban population as follows: in 2000 - from 54.4% and 78.8% (P<0.05), in 2001 - from 83.3% and 62.4% (P >0.05), in 2002 – 88.6% and 100.0% (P>0.05), in 2003 – 59.3% and 100.0% (P<0.001), in 2004 – 73 ,2% and 100.0% (P<0.05), 2005 – 79.2% and 100.0% (P<0.05), 2006 – 65.7% and 100.0% (P<0.05), in 2007 – 83.3% and 100.0% (P>0.05), in 2008 – 60.0% and 100.0% (P>0.05) , in 2009 - from 32.4% and 13.0% (P>0.05), in 2010 - from 38.7% and 29.4% (P>0.05), in 2011 - from 40.5% and from 63.0% (P<0.05), in 2012 - from 60.7% and 100.0%

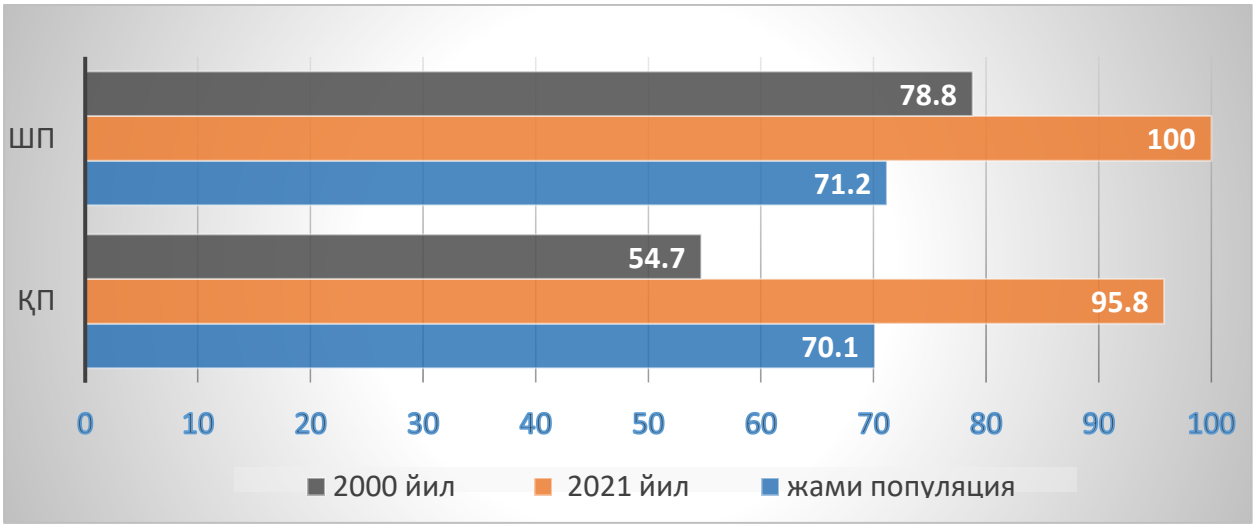
(P<0.001), in 2013 - from 52.7% and 54.1% (P>0 .05), in 2014 - from 77.4% and 100.0% (P<0.001), in 2015 - from 74.9% and 90.0% (P>0.05), in 2016 - from 100.0 % and from 7.7% (P<0.001), in 2017 - from 100.0% and 15.2%

2 – table Description of the prevalence and 21-year trend of degenerative spinal cord injury in an elderly population

Years	Male population			P	Female population			General population		
	N	UDSh			N	UDSh		N	UDSh	
		n	%			n	%		n	%
2000	60	39	65.0	>0.05	89	63	70.8	149	102	68.5
2001	50	34	68.0	>0.05	59	39	66.1	109	73	67.0
2002	31	29	93.5	>0.05	46	43	93.5	77	72	93.5
2003	19	14	73.7	>0.05	43	37	86.0	62	51	82.3
2004	26	20	76.9	>0.05	40	35	87.5	66	55	83.3
2005	28	21	75.0	>0.05	45	41	91.1	73	62	84.9
2006	17	11	64.7	>0.05	36	30	83.3	53	41	77.4
2007	24	23	95.8	>0.05	49	38	77.6	73	61	83.6
2008	22	10	45.5	>0.05	59	39	66.1	81	49	60.5
2009	64	8	12.5	<0.001	101	41	40.6	165	49	29.7
2010	63	22	34.9	>0.05	69	16	23.2	132	38	28.8
2011	95	43	45.3	>0.05	99	46	46.5	194	89	45.9
2012	100	71	71.0	>0.05	110	86	78.2	210	157	74.8
2013	53	25	47.2	>0.05	75	43	57.3	128	68	53.1
2014	95	77	81.1	>0.05	122	103	84.4	217	180	82.9
2015	75	74	98.7	<0.001	106	63	59.4	181	137	75.7
2016	68	44	64.7	>0.05	75	51	68.0	143	95	66.4
2017	101	73	72.3	>0.05	119	80	67.2	220	153	69.5
2018	81	71	87.7	<0.001	115	74	64.3	196	145	74.0
2019	88	78	88.6	>0.05	145	128	88.3	233	206	88.4
2020	81	74	91.4	<0.001	151	151	100.0	232	225	97.0
Total	1241	861	69.4	>0.05	1753	1247	71.1	2994	2108	70.4

$\chi^2 = 1, 075$
S = 0.019 _
RR = 0, 975
95 % CI = 0.930 - 1.022 _ _ _
P>0.05

Note: In this and subsequent tables,
UDSh is a degenerative injury of the spine



ShP - urban population, QP - rural population

3 – picture. Features of the epidemiological description of UDS in rural and Urban population

Table 3 Prevalence and 21-year trends of degenerative spinal cord injury in an urban and rural population

Years	Rural population			P	City population			General population		
	N	UDSh			N	UDSh		N	UDSh	
		n	%			n	%		n	%
2000	64	35	54.7	<0.05	85	67	78.8	149	102	68.5
2001	24	20	83.3	>0.05	85	53	62.4	109	73	67.0
2002	44	39	88.6	>0.05	33	33	100.0	77	72	93.5
2003	27	16	59.3	<0.001	35	35	100.0	62	51	82.3
2004	41	30	73.2	<0.05	25	25	100.0	66	55	83.3
2005	53	42	79.2	<0.05	20	20	100.0	73	62	84.9
2006	35	23	65.7	<0.05	18	18	100.0	53	41	77.4
2007	72	60	83.3	>0.05	1	1	100.0	73	61	83.6
2008	80	48	60.0	>0.05	1	1	100.0	81	49	60.5
2009	142	46	32.4	>0.05	23	3	13.0	165	49	29.7
2010	115	33	28.7	>0.05	17	5	29.4	132	38	28.8
2011	148	60	40.5	<0.05	46	29	63.0	194	89	45.9
2012	135	82	60.7	<0.001	75	75	100.0	210	157	74.8
2013	91	48	52.7	>0.05	37	20	54.1	128	68	53.1
2014	164	127	77.4	<0.001	53	53	100.0	217	180	82.9
2015	171	128	74.9	>0.05	10	9	90.0	181	137	75.7

2016	91	91	100.0	<0.001	52	4	7.7	143	95	66.4
2017	141	141	100.0	<0.001	79	12	15.2	220	153	69.5
2018	140	91	65.0	<0.001	56	54	96.4	196	145	74.0
2019	145	145	100.0	<0.001	88	61	69.3	233	206	88.4
2020	166	159	95.8	>0.05	66	66	100.0	232	225	97.0
Total	2089	1464	70.1	>0.05	905	644	71.2	2994	2108	70.4
$\chi^2 = 0.353$ S = 0.011 RR = 0.984 95% CI = 0.936 - 1.035 P >0.05										

(P<0.001), in 2018 - from 65.0% and 96.4% (P<0.001), in 2019 - from 100.0% and 69.3% (P<0.001), and in 2020 - from 95.8 % and 100.0% (P>0.05).

21-year UDS trend in the rural population - from 54.7% to 70.1% (with a difference of 15.4%) and in the urban population - from 78.8% to 100.0% (with a difference of 21.2%) is represented by

It is worth noting that UDS is detected in high frequencies and is represented by an increasing trend in recent years.

CONCLUSIONS

1. The pathology of degenerative spine damage is often detected late, and therefore it is necessary to develop and implement methods of its prediction and prevention with the use of the most modern technologies of surgical practice. Preventive activity makes it possible to reduce the rate of disease by 6 times and its complications by 50%.
2. According to 21 years of epidemiological monitoring, UDS is determined with a prevalence of 70.4% in the inpatient population and is confirmed by an increasing trend of 1.3% per year. and older population) is observed.

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