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ABSTRACT

of the dissertation for the degree of Doctor of Philosophy

DISEASE FROM URO-NEPHROLOGICAL PATHOLOGIES AND ITS RISK FACTORS IN THE ECONOMİC REGİON OF LANKARAN-ASTARA

Speciality: 3212.01— Healthcare and its organization

Field of science: Medicine

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INTRODUCTION

The actuality and processing degree of the subject. Uro-nephrological diseases (UND) play an important role in the morbidity, disability and death risk of the population. Inflammatory diseases are in the first place in terms of prevalence among UND. According to the literature, 60% of women and 12% of men suffer from an inflammatory disease of the urological system at least once in their life[1]. The most common symptom at this time is the need to urinate frequently. More chronic forms are found. Thus, according to the results of the conducted research[2], 15.6% of 4109 men had acute prostatitis, and 78.3% had chronic prostatitis.

In turn, urinary stone disease (USD) is the second most common disease in the world after inflammatory diseases of the kidneys and urinary tract. USD continues to grow globally. According to the results of the research conducted in this field 3 USD has increased almost twice in the last 15 years[3].

The incidence and prevalence of urinary calculi are increasing in both developed and developing countries[4]. In developing countries, urinary stones are found at younger ages than in developed countries. This is related to the low level of lifestyle, financial situation, social welfare and medical education of the population in those countries. In Azerbaijan, the incidence rate of USD was 72.1:10000[5]. Urethral and prostate gland stones were very few (0.74%).

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[1] Yasser Elkhiat, Urological Syndrome and their Problems // Andrology, 2022, Mar. Vol.11, İss.2, No: 1000253

[2] Curtis Nickel J. Chronic Prostate Inflammation is Associated with Severity and Progression of Benign Prostatic Hyperplasia, Lower Urinary Tract Symptoms and Rick of Acute Urinary Retention / Claus G. Roehrborn, Ramiro Castro-Santamaria, Stephen J. Freedland [et al.] // The journal of urology, volume 196, Issue 5, November 2016, p. 1493-1498

[3] Ziya Kirkali. Urinary Stone Disease: Progress, Status and Needs / Rebekah Rasooly, Robert A. Star, Griffin P Rodgers // Urology October 2015, Vol 86, Issue 4, p. 651-653

[4] Ziya Kirkali. Urinary Stone Disease: Progress, Status and Needs / Rebekah Rasooly, Robert A. Star, Griffin P Rodgers // Urology October 2015, Vol 86, Issue 4, p. 651-653

[5] Джавадзаде С. М. “Мочекаменная болезнь в эндемическом регионе’’ (Монография). Баку: Военное издательство, 1996, 126 с

Illnesses with CKF cover all age groups of the population and both sexes. In a study conducted among 645 people in Varanasi, India, it was found that the average age of the patients was 40, male patients were 60.8%, and female patients were 39.2%.[6] The frequency of occurrence of CKF in different ages and sexes was also different. Thus, 40.1% of people up to 45 years old, 53.2% of people aged 45-65 years, and 75.8% of people over 65 years of age were prescribed CKF. It can be seen from here that as the age increases, the frequency of CKF also increases. In addition, 44.4% of men and 50.2% of women had STDs.

The formation and spread of UND are caused by external environmental factors, public social situation, other diseases of the body, pathological conditions, as well as hereditary diseases, congenital diseases of the genitourinary system, etc. addiction is one of the most urgent problems of modern medicine.

The object and subject of the research. Patients with uro-nephrological diseases are the object of research, and urological diseases in those patients are defined as the subject of research.

The purpose of the study. Characterization of the spread of uro-nephrological diseases among the population and identification of risk factors of these diseases based on the application in the example of Lankaran-Astara economic region (LAER).

Objectives of the study:

1. Assessing the general characteristics of the population suffering from uro-nephrological pathologies.
2. Substantiation the risk of death, dialysis assistance in the terminal state and the survival time of patients and it's predictors related to uro-nephrological diseases.
3. Finding out the gender and age-dependent characteristics of the population of uro-nephrological pathologies.

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[6] Rai Pradeep K. Prevalence and risk factors of chronic kidney disease: a single day screening on World kidney day for four consecutive years in Varanasi / Rai Punam, Bedi Sonam // Urology & Nephrology Open Access Journal 2018, Volume 6, Issue 6, p. 167-171

4. Determination the characteristics of the spread of uro-nephrological diseases among the population by administrative regions.
5. Comprehensively characterize the risk factors of uro-nephrological diseases.

Methods of the study:

— studying the morbidity of the population
— clinical-laboratory and instrumental examination of patients
— expert assessment of medical care
— descriptive and analytical statistical methods.

The main provisions of the dissertation presented for defense: The existing information base on the morbidity of the population based on the grouping of pathologies such as urogenital system diseases is not sufficient for the planning and organization of uro-nephrological assistance, the diseases requiring direct urological and nephrological assistance (urinary stone disease, neoplasms of the urogenital system, nephrological inflammatory diseases, it is necessary to study the epidemiological characteristics of other comorbid pathologies - complications of arterial hypertension and diabetes. The level of morbidity and terminal condition of the population with uro-nephrological pathologies depends on multi-factorial risks, and as a result, the regional characteristics of the population's demand for uro-nephrological assistance become a priority from a medical and organizational point of view.

Scientific novelty of the study:

– In the LAER sample, the level of the population morbidity with the main nosological forms of uro-nephrological pathologies was determined, priorities for the region were determined, different characteristics of morbidity with individual nosological forms depending on the age and gender of the population were revealed.
– The role of the main nosological forms of uro-nephrological diseases in the population's mortality risk, adequacy of using the possibilities of replacement therapy in the terminal stage of chronic renal failure, its suitability and predictors as a characteristic of the patient's survival time and quality criteria of medical care have been substantiated.

– The risk complex of the factors that cause chronic renal failure according to the modern concept of the illness risk has been characterized, their prevention and the reduction of the social burden of their consequences ways are indicated.

The theoretical and practical importance of the research results. The research results create a theoretical basis for modern marketing approach to optimize the demand of the population, taking into account the characteristics of medical care based on the morbidity of the population, their importance for practical health care can serve to optimize uro-nephrological care both in the country and in the regions.

In the activities of urologists and nephrologists in Lankaran region, the provisions substantiated in the research and published in authoritative journals. It is used in the educational process at ASATID named after A. Aliyev.

Approbation and application of the dissertation. It was discussed in the scientific councils of ASATID named after A. Aliyev, inter-departmental conferences, medical councils of the central district hospitals of LAER. The main provisions of the work were held at the scientific-practical conferences dedicated to the birthday of Aziz Mammadkarim oglu Aliyev (in 2020 and 2021), at the international conference in Petrozavodsk, Russian Federation (2023). The initial discussion of the dissertation was held at the inter-departmental meeting of ASATID named after A. Aliyev ("Pedagogy, psychology and foreign language course with the department of organization and management of health care", "Urology", "Pharmacy" department METL) (protocol No. 10; 30 may 2024). It was reported and discussed at the scientific seminar of the FD 1.03 Dissertation Council operating under the National Ophthalmology Center named after Academician Zarifa Aliyeva (30 october 2024; protocol No. 11).

Published works. The results and main provisions of the dissertation were published in 14 scientific articles, including 11 journal articles, including two foreign journals, as well as 3 conference proceedings, including one foreign journal.

The name of the organization where the dissertation work was carried out: The Azerbaijan State Advanced Training Institute for Doctors named after Aziz Aliyev.

The total volume of the dissertation with symbols, indicating the volume of the structural units of the dissertation separately: The dissertation consists of an introduction (- 8073 marks), a literature review (Chapter I - 48991 marks), research materials and methods (Chapter II - 8188 marks), 4 chapters reflecting the conclusion of personal observations (Chapter III - 12798 marks, Chapter IV - 67516 marks, Chapter V - 39725 marks, Chapter VI - 7059 marks), consists of a discussion of the obtained results (Chapter VII - 11913 marks), conclusions (- 3089 marks), practical recommendations (- 1216 marks) and a list of used literature. The list of used literature includes 144 sources in English, 40 in Russian, and 11 in Azerbaijani. The dissertation is a total of 170 pages compiled on a computer, enriched with 37 tables and 18 diagrams.

The total volume of the dissertation with marks (excluding spaces, tables, graphics and list of references) – consists of 203739 marks.

MATERIALS AND METHODS OF RESEARCH

The observation unit of the study was a patient with uro-nephrological pathology. For the study, the cases of illness with UND were selected based on the application in Lankaran, Astara, Masalli, Jalilabad, Lerik and Yardimli Central District Hospitals, as well as Lankaran and Jalilabad Regional Treatment and Diagnostic Centers. Patients with chronic renal failure (CRF) were treated in the hemodialysis department of Astara and Masalli Central District Hospitals, as well as Lankaran and Jalilabad Regional Treatment and Diagnostic Centers.

A total of 29,531 cases of illness were investigated. Among these, 19,416 were men and 10,115 were women. The following indicators were used for the statistical evaluation of the patients indicators registered on the basis of the application.

– relative quantity

– standard error $s = \sqrt{\frac{pq}{N}}$;

where s-standard error, p-standard error is the share of the indicator in the set, q-p is the share of the part that can complete the whole, N-the number of individuals in the set.

– relative extensiveness (structural) indicator-calculation of % by sum.

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– comparison of two groups $\chi^2=\sum\frac{(O-E)^2}{E}$;

where χ^2-fitness criterion, $\sum$-sum sign, O-observed indicators, E-expected indicators.

– Kaplan-Meier method $S(t)=\Pi(1-\frac{dt}{n_t})$;

where S(t) is the survival rate without death, Π is the multiplication symbol, the number of deaths at time dt-t, the number of observations at time nt-t.

– Standard error of the Kaplan-Meier indicator, Greenwood's formula,

$$s_{S(t)}=S(t)\sqrt{\sum\frac{d_t}{n_t(n_t-d_t)}};$$

where $s_{S(t)}$- standard error, S(t)-Kaplan-Meier indicator, number of deaths at time dt-t, number of observed at time nt-t. Kaplan-Meier confidence interval

$$S(t)-z_\alpha s_{S(t)}<S(t)<S(t)+z_\alpha s_{S(t)};$$

ILLNESS AND DEATH OF THE POPULATION WITH URO-NEPHROLOGICAL PATHOLOGIES IN LANKARAN-ASTARA ECONOMIC DISTRICT

The average chronological incidence of UND based on referral to LAER during 2010-2014 was determined as $841.28\pm9.84^0/_{0000}$ (Chart 1).

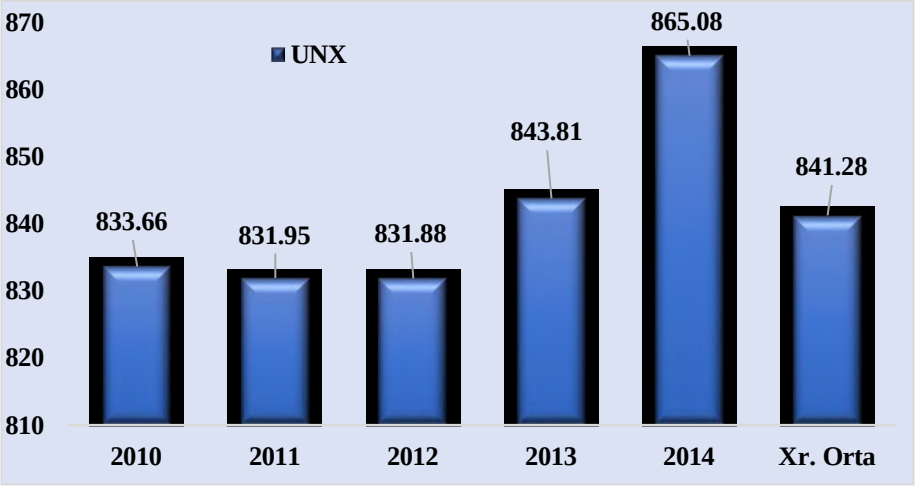

Diagram 1. Indicator of uro-nephrological morbidity in LAER ($^0/_{0000}$)

In LAER, in 2010-2014, the incidence rate of pyelonephritis was 112.25±3,61$^0/_{0000}$, the incidence rate of cystitis was 103.99±3,47$^0/_{0000}$, and the average chronological incidence rate of men with prostatitis was 108.38±5,01$^0/_{0000}$.

In addition to the most common inflammatory diseases listed above, other inflammatory diseases that are relatively rare among men have also been found. This group includes orchitis, epididymitis, urethritis, vesiculitis, balanitis, balanoposthitis and others. The average chronological incidence of other inflammatory diseases in 2010-2014 was 105.49±4.94$^0/_{0000}$.

In LAER, during the calendar years 2010-2014, the average chronological morbidity rate with USD was 90.46±3.2$^0/_{0000}$, and the increase in morbidity in 2012-2013 and 2013-2014 was found to be statistically honest ($p<0.05$).

In 2010-2014, the average chronological incidence rate of kidney tumors was 10.03±1,08$^0/_{0000}$, and the incidence rate of bladder tumors was determined as 13.82±1,27$^0/_{0000}$.

Benign prostatic hyperplasia (BPH) is the most common neoplasm of the uro-nephrological system in LAER, and prostate

cancer is the least common. The average chronological incidence of BPH was 132.54±5.54⁰/₀₀₀₀, and the incidence rate of prostate cancer was determined as 13.14±1.74⁰/₀₀₀₀.

In 2010-2014, the average chronological morbidity index with chronic glomerulonephritis was determined as 76.65±2.98⁰/₀₀₀₀, and with diabetic nephropathy as 65.98±2.77⁰/₀₀₀₀.

In addition to the nephrological diseases listed above, in LAER in general, a small number of other UND are also found. This group includes kidney polycystosis, kidney tuberculosis, amyloidosis, etc. In 2010-2014, the average chronological morbidity rate with other UND was 7.88±0.96⁰/₀₀₀₀.

In 2006-2015, the average chronological incidence rate of IBD was 14.19±1,30⁰/₀₀₀₀. The lowest rate was recorded in 2006, and the highest rate was recorded in 2011. If we determine the change of morbidity from year to year, a statistically significant result is obtained in 2006-2007 and 2007-2008 ($p<0.05$).

Chronic glomerulonephritis takes the main place among the etiological causes of CKF (53.47±2.74%), followed by diabetic nephropathy (25.08±2.38%), followed by UND (8.16±1.50%)), polycystosis of kidneys (6.34±1.34%) etc. catching diseases.

The rate of death due to kidney diseases as the primary cause of death fluctuated between 29.4±5.9⁰/₀₀₀₀₀ and 38.7±6.8⁰/₀₀₀₀₀ in the general population in 2006-2015, with 34.5±6.3⁰/₀₀₀₀₀ (table 1). In addition, the average mortality among the male population is 28.3±8.2⁰/₀₀₀₀₀ -55.2±11.0⁰/₀₀₀₀₀ with 44.21±0.12⁰/₀₀₀₀₀, and the average among the female population is 24.5±7.55⁰/₀₀₀₀₀. It changed in the interval of 11.2±5.0⁰/₀₀₀₀₀ -32.0±8.7⁰/₀₀₀₀₀. The level of the indicator remained practically stable both in the general population and between men and women during calendar years ($p>0.05$). Although mortality rates differ between men and women, the null hypothesis is rejected only in 2010 and 2015 ($p<0.05$).

Analyzing the mortality and lethality indicators according to the primary cause in LAER, it is known that relatively high mortality rates occurred due to chronic glomerulonephritis and diabetic nephropathy (12.8±5.5⁰/₀₀₀₀₀ among men for both nosologies, 10 respectively among women, 4±5.2⁰/₀₀₀₀₀ and 5.7±3.7⁰/₀₀₀₀₀). The mortality rates

for UND, polycystic kidneys and other nosologies are characterized by lower numbers (respectively, among men, 4.3±3.2⁰/₀₀₀₀₀, 2.6±2.5⁰/₀₀₀₀₀, 3.3±2.7⁰/₀₀₀₀₀, and among women 1.7±2.0⁰/₀₀₀₀₀, 1.4±1.8⁰/₀₀₀₀₀, 0.2±0.2⁰/₀₀₀₀₀). The difference between male and female mortality rates was insignificant.

Table 1. Mortality rates of the population from uro-nephrological diseases in the Lankaran-Astara economic district (per 1,000,000 people of the population)

Years	The whole population	Men	Women
2006	35,8±6,9	42,8±10,3	24,0±8,5
2007	36,7±6,8	48,1±10,2	32,0±8,7
2008	36,8±6,7	41,0±10,2	31,7±8,8
2009	38,7±6,8	48,6±10,9	28,9±8,3
2010	32,2±6,2	40,7±9,9	23,8±7,5
2011	29,4±5,9	28,3±8,2	30,6±8,5
2012	34,8±6,4	48,7±10,6	20,9±7,0
2013	35,5±6,3	45,6±10,2	25,3±7,6
2014	31,6±6,0	42,6±9,2	20,4±6,8
2015	33,3±6,1	55,2±11,0	11,2±5,0
Middle chronology	34,5±6,3	44,2±10,12	24,5±7,55

1-, 2-, 3-, 4- and 5-year survival rates due to CKF in LAIR were 80.43±1.86, 67.28±2.29, 53.82±2.56, 45.73±2.68 and 42.08± 2.70.

Depending on the etiological cause, survival indicators were evaluated in three groups - chronic glomerulonephritis, diabetic nephropathy and CKF caused by other causes. The 4-, 5-, 6-, 7- and 8-year survival indicators for CKF of chronic glomerulonephritis and diabetic nephropathy were statistically significantly different ($p<0.05$). The difference between the survival rates of men and women was not significant ($p>0.05$).

Age-specific survival rates were examined in three groups—0-40, 40-60, and over 60. Survival rates were lower in older age groups ($p<0.05$).

Risk factors for survival in patients receiving hemodialysis treatment include age of patients, cause of CKF, high systolic and diastolic blood pressure, low level of hemoglobin, albumin, globulin, calcium, phosphate and cholesterol, body weight index.

GENDER AND AGE CHARACTERISTICS OF URO-NEPHROLOGICAL DISEASES IN LANKARAN-ASTARA ECONOMIC REGION

In 2010-2014, the average chronological incidence of pyelonephritis in men was 108.30±5.01⁰/₀₀₀₀, among women 116.23± 5.19⁰/₀₀₀₀, and the incidence of cystitis was 100.26±4.82⁰/₀₀₀₀ and 107.73±5.00⁰/₀₀₀₀respectively.

Due to the fact that the average chronological incidence rate of prostatitis among men in LAER was 108.38±5,01⁰/₀₀₀₀ in 2010-2014, and changed in the interval of 105.32±4,90⁰/₀₀₀₀-112.13±5,09⁰/₀₀₀₀ in calendar years. As we mentioned in the previous section, during the years 2010-2014, the average chronological morbidity rate of men with other inflammatory diseases fluctuated between 102.86± 4.88⁰/₀₀₀₀ and 108.06±4.96⁰/₀₀₀₀ as 105.49±4.94⁰/₀₀₀₀

In calendar years 2010-2014, the average chronological morbidity index of men with USD was 111.54±5.08⁰/₀₀₀₀, and among women it was determined as 57.86±3.67⁰/₀₀₀₀. These indicators showed differences in individual years. Thus, the incidence of men in the indicated calendar years was 100.05±4,89⁰/₀₀₀₀, 102.76± 4,92⁰/₀₀₀₀, 107.69±4,99⁰/₀₀₀₀, 118.99±5,21⁰/₀₀₀₀, 128.19±5,60⁰/₀₀₀₀, respectively and the morbidity of women varied in the range of 53.07±3,55⁰/₀₀₀₀, 55.42±3,61⁰/₀₀₀₀, 48.03±3,34⁰/₀₀₀₀, 59.75± 3,70⁰/₀₀₀₀ and 73.03±4,07⁰/₀₀₀₀.

The difference in morbidity between men and women was statistically significant both in overall and in individual calendar years ($p<0.05$).

In 2010-2014, the average chronological incidence rate of kidney tumors among men was 11.51±1,63⁰/₀₀₀₀, among women 8.55±1,41⁰/₀₀₀₀, and the incidence rate of bladder tumors was 20.45±2,18⁰/₀₀₀₀ and respectively it is defined as 7,23±1,30⁰/₀₀₀₀.

The average chronological incidence rate of the prevalence of BPH among men in LAER was 132.54±5.54⁰/₀₀₀₀in 2010-2014, in the range of 130.68±5.58 – 133.90±5.57⁰/₀₀₀₀, prostate and the rate of disease with gland cancer is 13.14±1.74⁰/₀₀₀₀.

In 2010-2014, the average chronological morbidity rate of men with glomerulonephritis was determined as 67.22±3.94⁰/₀₀₀₀, among women as 86.11±4.47⁰/₀₀₀₀. When examining gender, it is known that women get sick more than men. Thus, the honesty of this difference is evident both in individual years and in average chronological indicators ($p<0.05$).

In the mentioned calendar years, the average chronological incidence rate of men with diabetic nephropathy was determined as 75.20±4.17⁰/₀₀₀₀, and among women as 56.74±3.63⁰/₀₀₀₀.

If we pay attention to the gender characteristics of diabetic nephropathy cases, it seems that men are tend to be more sick than women. This difference was statistically significant both in overall and individual years ($p<0.05$).

In 2010-2014, the average chronological morbidity rate of men with other UND was determined as 9.14±1,46⁰/₀₀₀₀, and among women as 6.55±1,23⁰/₀₀₀₀.

Between 2006 and 2015, the chronological incidence of CKF was 17.69±2,05⁰/₀₀₀₀ among men and 10.69±1,59⁰/₀₀₀₀ among women (table 2). Among men, the lowest incidence was recorded in 2006, and the highest incidence was recorded in 2012. While examining the change of the morbidity level from year to year, only in 2006-2007, it can be seen that this change is statistically honest ($p<0.05$). Among women, the lowest incidence was recorded in 2006, and the highest incidence was recorded in 2011. The change of morbidity from year to year was not statistically honest ($p>0.05$).

It is noted that CKF is more common in men than in women. So, in 2008-2015 also the difference between the average chronological men's and women's CKF and morbidity indicators was statistically honest ($p<0.05$).

When studying the etiological causes of CKF by gender, it is found that chronic glomerulonephritis 48.51±3.52%, diabetic nephropathy 29.21±3.20%, USD 11.39±2, 24%, kidney polycystosis

5.44±1.60%, kidney amyloidosis 0.50±0.50%, kidney tuberculosis 0.99±0.70% and other diseases 3.96±1.37%.

Table 2. Gender characteristics of CKF in Lankaran-Astara economic district (per 100,000 people)

	Men	Women
	$\frac{n}{N}$*100 000	$\frac{n}{N}$*100 000
2006	8,39±1,46	5,47±1,17
2007	13,28±1,82	8,87±1,48
2008	18,03±2,11	10,23±1,58
2009	18,48±2,12	12,76±1,75
2010	18,67±2,11	11,67±1,67
2011	19,55±2,15	12,95±1,75
2012	20,62±2,19	11,16±1,61
2013	20,06±2,14	11,71±1,64
2014	19,97±2,12	11,34±1,60
2015	19,88±2,1	10,74±1,55
	17,69±2,05	10,69±1,59

Chronic glomerulonephritis 61.24±4.29%, diabetic nephron-pathy 18.60±3.42%, USD 3.10±1.53%, kidney polycystosis 7.75± 2.35% as the etiological cause of CKF among women, renal amyloidosis was 2.33± 1.33%, renal tuberculosis was 0.78±0.77%, and other diseases were 6.20±2.12%.

The comparison of the etiological reasons of men and women with CKF has led to remarkable points. Thus, it can be said that chronic glomerulonephritis as an etiological cause is more widespread among women, the difference between these two groups is statistically honest ($p<0.05$).

When studying the etiological causes of CKF by gender, it is found that chronic glomerulonephritis 48.51±3.52%, diabetic nephropathy 29.21±3.20%, USD 11.39±2, 24%, kidney polycystosis 5.44±1.60%, kidney amyloidosis 0.50±0.50%, kidney tuberculosis 0.99±0.70% and other diseases 3.96±1.37%.

Chronic glomerulonephritis 61.24±4.29%, diabetic nephropathy 18.60±3.42%, USD 3.10±1.53%, kidney polycystosis 7.75±2.35% as the etiological cause of CKF among women, renal amyloidosis was 2.33±1.33%, renal tuberculosis was 0.78±0.77%, and other diseases were 6.20±2.12%.

The comparison of the etiological reasons of men and women with USD has led to remarkable points. Thus, it can be said that chronic glomerulonephritis as an etiological cause is more widespread among women, the difference between these two groups is statistically honest ($p<0.05$).

CHARACTERISTICS OF THE SPREAD OF URO-NEPHROLOGICAL DISEASES BY PLACE OF RESIDENCE IN LANKARAN-ASTARA ECONOMIC REGION

In Astara region in 2010-2014, the average chronological morbidity with pyelonephritis was 124.43±11.12⁰/₀₀₀₀, including 123.64± 15.68⁰/₀₀₀₀ among men, and 125.19±15.77⁰/₀₀₀₀ among women. Similarly, the average chronological incidence with cystitis morbidity was 112.99±10.60⁰/₀₀₀₀, including 111.98±14.93⁰/₀₀₀₀ among men, and 113.98±15.04⁰/₀₀₀₀ among women. Also, the average chronological morbidity with prostatitis was determined as 115.12± 15.13⁰/₀₀₀₀, morbidity with other inflammatory diseases as 110.70± 14.84⁰/₀₀₀₀.

In the calendar years 2010-2014 in Astara region, the average chronological morbidity with USD was 105.42±4,58⁰/₀₀₀₀, including 133.47± 7,29⁰/₀₀₀₀ among men, and 77.40±5,55⁰/₀₀₀₀ among women. During the observation period, only in 2012-2013, the increase in morbidity in general and among women was statistically significant ($p<0.05$).

In Astara region in 2010-2014, the average chronological incidence of kidney tumor was 8.40±2.89⁰/₀₀₀₀, including 9.61± 4.38⁰/₀₀₀₀ among men and 7.19±3.78⁰/₀₀₀₀ among women. Similarly, bladder tumor the average chronological morbidity was 17.58±4.14⁰/₀₀₀₀, including 25.63±7.14⁰/₀₀₀₀ among men and 9.56±4.36⁰/₀₀₀₀ among women. Also, the average chronological

morbidity with PCV was determined as 130.02±16.08‰, and the incidence with prostate cancer was determined as 12.82±5.05‰.

Analogously to the above, in Astara region, the average chronological incidence of glomerulonephritis in 2010-2014 was 60.90±7,78‰, the average chronological incidence of diabetic nephropathy was 51.25± 7,14‰, as well as the incidence rate of other UND was 10.39± 3,22‰ registered as.

The prevalence of USD in the general population in Astara region during 2006-2015 was determined as 11.94±3,45‰, including 15.94± 5,63‰ and 7.95±3,98‰ among men and women, respectively.

In Lankaran region, in 2010-2014, the average chronological incidence of pyelonephritis was 120.81±7,51‰, including 118.59± 10,52‰ among men, and 123.03±10,70‰ among women. Similarly, the average chronological incidence of cystitis was 115,81± 7,33‰, including 113,32±10,29‰ among men, and 117,01± 10,44‰ among women. Also, the average chronological morbidity with prostatitis was determined as 115.18±10.37‰, morbidity with other inflammatory diseases as 113.11±10.28‰.

In the calendar years 2010-2014 in Lankaran region, the average chronological morbidity with USD was 81.34±2,75‰, including 108.65±4,50‰ among men, and 54.09±3,17‰ among women. During the observation period, only in 2012-2013 overall and among men, and in 2013-2014, the increase in morbidity among women was statistically significant ($p<0.05$).

In Lankaran region, in 2010-2014, the average chronological incidence of kidney tumor was 12.86±2,45‰, including 15.98±3,86‰ among men, and 9.75±3,01‰ among women. Similarly, bladder tumor the average chronological morbidity was 15.86±2.72‰, including 23.52±4.69‰ among men and 8.23± 2.77‰ among women. Also, the average chronological morbidity with BPH was determined as 150.57±11.85‰, and the incidence with prostate cancer was determined as 14.85±3.73‰.

Analogous to the above, the average chronological morbidity with glomerulonephritis in 2010-2014 in Lankaran region was

88.98±6.44⁰/₀₀₀₀, the average chronological morbidity with diabetic nephropathy was 81.74±6.17⁰/₀₀₀₀, as well as the morbidity index with other UND was 7.60±1.88⁰/₀₀₀₀ registered as.

The prevalence of CKF in the general population in Lankaran region during 2006-2015 was determined as 23.81±3,33⁰/₀₀₀₀, including 28.04± 5,12⁰/₀₀₀₀ and 19.57±4,27⁰/₀₀₀₀ among men and women, respectively.

In Masalli region, the average chronological incidence of pyelonephritis in 2010-2014 was 116.63±7,50⁰/₀₀₀₀, including 111.52±10,31⁰/₀₀₀₀ among men, and 121.85±10,89⁰/₀₀₀₀ among women. Analogously, the average chronological incidence of cystitis was 110,99±7,31⁰/₀₀₀₀, including 105,92±10,05⁰/₀₀₀₀ among men, and 116,16± 10,063⁰/₀₀₀₀ among women. Also, the average chronological morbidity with prostatitis was determined as 113.15± 10.39⁰/₀₀₀₀, morbidity with other inflammatory diseases as 111.00± 10.29⁰/₀₀₀₀.

In Masalli district, the average chronological morbidity because of USD in the calendar years 2010-2014 was 70.20± 5.82⁰/₀₀₀₀, including 97.24±9.63⁰/₀₀₀₀ among men, and 42.61± 6.44⁰/₀₀₀₀ among women. During the observation period, only in 2013-2014, the increase in morbidity in general and among men was statistically significant ($p<0.05$).

In Masalli region, the average chronological incidence of kidney tumor in 2010-2014 was 10.39±2,24⁰/₀₀₀₀, including 11.55± 3,32⁰/₀₀₀₀ among men, and 9.22±3,00⁰/₀₀₀₀ among women. Similarly, bladder tumor with the average chronological morbidity was 13.98±2,60⁰/₀₀₀₀, including 20.21±4,39⁰/₀₀₀₀ among men, and 7.63±2,73⁰/₀₀₀₀ among women. Also, the average chronological morbidity with PCV was determined as 139.91±11.55⁰/₀₀₀₀, and the incidence with prostate cancer was determined as 13.10±3.54⁰/₀₀₀₀.

Analogous to the above, the average chronological morbidity with glomerulonephritis in Masalli region in 2010-2014 was 84.69±6.39⁰/₀₀₀₀, the average chronological morbidity with diabetic nephropathy was 76.63±6.08⁰/₀₀₀₀, as well as the morbidity index with other UND was 6.89±1.82⁰/₀₀₀₀ registered as.

The prevalence of CKF in the general population of Masalli region during 2006-2015 was determined as 16.40±2.81⁰/₀₀₀₀, including 21.01± 4.48⁰/₀₀₀₀ and 11.68±3.37⁰/₀₀₀₀ among men and women, respectively.

In Jalilabad region, in 2010-2014, the average chronological morbidity with pyelonephritis was 102.13±7.12⁰/₀₀₀₀, including 97.88±9.88⁰/₀₀₀₀ among men, and 106.35±10.26⁰/₀₀₀₀ among women. Analogously, the average chronological morbidity with cystitis was 96,40± 6,92⁰/₀₀₀₀, including 92,02±9,58⁰/₀₀₀₀ among men, and 100,76±9,99⁰/₀₀₀₀ among women. Also, the average chronological morbidity with prostatitis was determined as 100.26±10,00⁰/₀₀₀₀, morbidity with other inflammatory diseases as 98.05±9,89⁰/₀₀₀₀.

In Jalilabad district, the average chronological morbidity in USD in 2010-2014 calendar years was 86.12±6,54⁰/₀₀₀₀including 109.47±10,45⁰/₀₀₀₀ among men, and 63.02±7,91⁰/₀₀₀₀ among women. During the observation period, the level of morbidity was stable, but a gender difference was detected ($p<0.05$).

In Jalilabad region, in 2010-2014, the average chronological incidence of kidney tumor was 8.22±2,02⁰/₀₀₀₀, including 8.86± 2,97⁰/₀₀₀₀ among men, and 7.58±2,74⁰/₀₀₀₀ among women. Analogously, bladder tumor the average chronological morbidity was 10.41±2.28⁰/₀₀₀₀, including 16.11±4.01⁰/₀₀₀₀ among men and 4.78± 2.18⁰/₀₀₀₀ among women. Also, the average chronological morbidity with BPH was determined as 125.83±11.20⁰/₀₀₀₀, and the incidence with prostate cancer was determined as 13.09±3.62⁰/₀₀₀₀.

Analogously to the above, in Jalilabad region, the average chronological morbidity with glomerulonephritis in 2010-2014 was 67.68±5,80⁰/₀₀₀₀, the average chronological morbidity with diabetic nephropathy was 54.47±5,20⁰/₀₀₀₀, as well as the index of morbidity with other UND was 6.91±1,85⁰/₀₀₀₀ registered as.

The prevalence of CKF in the general population in Jalilabad region during 2006-2015 was determined as 6.96±1,86⁰/₀₀₀₀, including 9.99±3,16⁰/₀₀₀₀ and 3.96±1,98⁰/₀₀₀₀ among men and women, respectively.

The average chronological incidence of pyelonephritis in Lerik region in 2010-2014 was 110.51±11,89⁰/₀₀₀₀, including 105.65± 16,45⁰/₀₀₀₀ among men, and 115.36±17,17⁰/₀₀₀₀ among women. Similarly, the average chronological incidence of cystitis 93,27± 10,92⁰/₀₀₀₀, including 90,61±15,24⁰/₀₀₀₀ among men, and 95,90±15,65⁰/₀₀₀₀ among women. Also, the average chronological morbidity with prostatitis was determined as 115.33±17.19⁰/₀₀₀₀, morbidity with other inflammatory diseases as 109.63±16.76⁰/₀₀₀₀.

In Lerik region, the average chronological morbidity in USD in 2010-2014 calendar years was 92.63±10,890/0000, including 124.97±17,89⁰/₀₀₀₀ among men, and 60.34±12,42⁰/₀₀₀₀ among women. During the observation period, only in 2013-2014, the increase in morbidity in general and among women was statistically significant ($p<0.05$).

In Lerik region, in 2010-2014, the average chronological incidence of kidney tumor was 9.53±3,49⁰/₀₀₀₀, including 10.31± 5,14⁰/₀₀₀₀ among men, and 18.75±4,73⁰/₀₀₀₀ among women. Analogously with bladder tumor average chronological morbidity was 12.35±3.98⁰/₀₀₀₀, including 19.10±7.00⁰/₀₀₀₀ among men and 7.69±4.43⁰/₀₀₀₀ among women. Also, the average chronological incidence of BPH was 111.74±16,92⁰/₀₀₀₀, and the incidence of prostate cancer was determined as 11.85±5,51⁰/₀₀₀₀.

Analogously to the above, the average chronological morbidity with glomerulonephritis in Lerik region in 2010-2014 was 79.42±10.08⁰/₀₀₀₀, the average chronological morbidity with diabetic nephropathy was 64.96±7.14⁰/₀₀₀₀, as well as the incidence rate with other UND was 9.76±3.53⁰/₀₀₀₀ registered as.

During 2006-2015, the prevalence of CKF in the general population in Lerik region was determined as 6.40±2.86⁰/₀₀₀₀, including 5.13±3.63⁰/₀₀₀₀ and 7.67±4.43⁰/₀₀₀₀ among men and women, respectively.

In Yardimli district, in 2010-2014, the average chronological incidence of pyelonephritis was 94.09±12,41⁰/₀₀₀₀, including 85.49± 16,65⁰/₀₀₀₀ among men, and 102.32±18,37⁰/₀₀₀₀ among women. Similarly, the average chronological incidence of cystitis was

75,23±11,10⁰/₀₀₀₀, including 66,91±14,730/0000 among men, and 83,68±16,61⁰/₀₀₀₀ among women. Also, the average chronological morbidity with prostatitis was determined as 87.39±16.84⁰/₀₀₀₀, morbidity with other inflammatory diseases as 82.68±16.38⁰/₀₀₀₀.

In Yardimli district, in calendar years 2010-2014, the average chronological morbidity in USD was 107.02±13,23⁰/₀₀₀₀, including 136.93±21,08⁰/₀₀₀₀ among men, and 76.61±15,90⁰/₀₀₀₀ among women. During the observation period, the level of morbidity was stable only during the observation period, but the gender difference was detected ($p<0.05$).

In Yardimli district, the average chronological incidence of kidney tumor in 2010-2014 was 9.22±3,89⁰/₀₀₀₀, including 10.45± 5,82⁰/₀₀₀₀ among men, and 7.97±5,13⁰/₀₀₀₀ among women. Similarly, bladder tumor the average chronological morbidity was 13.14± 4.64⁰/₀₀₀₀, including 19.60±7.98⁰/₀₀₀₀ among men and 6.60± 4.67⁰/₀₀₀₀ among women. Also, the average chronological incidence of BPH was 112.03±19,06⁰/₀₀₀₀, and the incidence of prostate cancer was determined as 11.12±6,01⁰/₀₀₀₀.

Analogously to the above, in Yardimli district, the average chronological incidence of glomerulonephritis in 2010-2014 was 64.86±10,31⁰/₀₀₀₀, the average chronological incidence of diabetic nephropathy was 44.48±8,54⁰/₀₀₀₀, and the incidence rate of other UND was 9.22±3,89⁰/₀₀₀₀ registered as.

The prevalence of CKF in the general population in Yardimli region during 2006-2015 was determined as 9.84±4.02⁰/₀₀₀₀, including 12.99±6.49⁰/₀₀₀₀ and 6.60±4.67⁰/₀₀₀₀ among men and women, respectively.

RISK FACTORS OF URO-NEPHROLOGICAL PATHOLOGIES ILLNESS OF THE POPULATION IN LANKARAN-ASTARA ECONOMIC DISTRICT

Gender, age, place of residence, average body weight index, education, marital status, social status and presence of co-morbidities were studied in the sample of risk factors of UND.

It turns out that gender as a risk factor (whether the patient is male or female) rejects the null hypothesis of inflammatory diseases (χ^2=4.43, p<0.05). According to this result, it can be said that inflammatory diseases are more common in women.

Evaluation of other risk factors with qualitative indicators was carried out in men and women separately, as well as in general. When evaluating the age factor, the null hypothesis was rejected in general (χ^2=0.68, p<0.5), as well as men (χ^2=2.68, p>0.5) and women (χ^2=1.24, p>0,5) is not denied between. Thus, the effect of age on the development of inflammatory diseases is not statistically honest.

When evaluating the place of residence as a risk factor, it is found that the null hypothesis is not rejected among men (χ^2=2.83, p<0.25) and women (χ^2=3.74, p<0.25), and in general (χ^2= 6.17, p<0.05) morbidity difference is statistically honest.

According to the average body weight index, both in general (χ^2=5.58, p<0.25) and in separate sexes (men and women, respectively, χ^2=1.39, p>0.5 and χ^2=4.85, p<0.25) the null hypothesis is not rejected.

When evaluating the level of education of the population as a risk factor in the development of inflammatory diseases, it is known that for separate genders (between men and women, respectively, χ^2=6.86, p<0.1 and χ^2=6.14, p<0.25) although there is no statistically difference, the null hypothesis is rejected in general (χ^2=10.82, p<0.025).

Marital status (in general, men and women respectively χ^2= 0.79, p>0.5, χ^2=0.16, p>0.5, χ^2=0.71, p>0.5), social status (in general, men and women respectively χ^2=2.87, p<0.5, χ^2=2.95, p<0.5, χ^2=0.32, p<0.5) and according to the presence of comorbidities (in general, men and women respectively χ^2=2.68, p<0.25, χ^2=0.91, p<0.5, χ^2=1.79, p<0.25) null hypothesis is not rejected .

Calculations show that gender (male or female) as a risk factor analogous to inflammatory diseases rejects the null hypothesis of USD formation (χ^2=10.51, p<0.005). However, unlike inflammatory diseases, it can be said that USD is more common in men.

When evaluating the age factor, the null hypothesis is rejected overall (χ^2=9.90, p<0.025) as well as among men (χ^2=7.98, p<0.05),

but women (χ^2=2.44, p< The difference between 0.5) is insignificant. Thus, the effect of age on the formation of USD in general and among men is statistically honest.

When evaluating the place of residence as a risk factor, it is found that in general (χ^2=1.31, p>0.5), men (χ^2=0.03, p>0.5) and women (χ2=1.94, p <0.5) the null hypothesis is not rejected.

According to the average body weight index, the null hypothesis is rejected both in general (χ^2=13.31, p<0.005) and among men (χ^2=21.30, p<0.001). The difference between women is insignificant (χ^2=4.18, p<0.25).

When evaluating the level of population education as a risk factor in the formation of USD, it is known that both in general (χ^2=3.29, p<0.5) and for individual genders (χ^2=1.93 between men and women, respectively, p>0.5 and χ^2=3.63, p<0.5) null hypothesis is not rejected.

Analogous calculations are related to marital status (in general, men and women respectively χ^2=9.41, p<0.01, χ^2=12.58, p<0.005, χ^2=0.47, p>0.5), social status (in general, men and women respectively χ^2=15.78, p<0.005, χ^2=14.83, p<0.005, χ^2=6.16, p<0.25) and according to the presence of comorbidities (in general, men and women perform χ^2=14.07, p<0.001, χ^2=22.00, p<0.001, χ^2=0.16, p>0.5 respectively), it is clear that although the null hypothesis is rejected in general and among men, women this difference between is insignificant.

During the study of neoplasms, it is known that gender as a risk factor (whether the patient is male or female) negates the null hypothesis of the formation of this nosology (χ^2=41.86, p<0.001). According to this result, it can be said that neoplasms are more common in men than in women. However, since BPH and prostate cancer, which make up the vast majority of neoplasms, occur only in men, the difference can be explained by this.

When evaluating the age factor, the null hypothesis is rejected in general (χ^2=46.04, p<0.001), as well as between men (χ^2=28.42, p<0.001) and women (χ^2=20.04, p<0.001). Thus, the effect of age on the formation of neoplasms is statistically honest.

When evaluating the place of residence as a risk factor, it is known that the null hypothesis is not rejected in general (χ^2=5.77, p<0.1) and among women (χ^2=0.46, p>0.5), while among men (χ^2 =6.70, p<0.05) morbidity difference is statistically honest.

According to the average body mass index, only overall (χ^2=13.35, p<0.005), the difference in morbidity is statistically honest, while in separate genders (χ^2=7.50, p<0.1 and χ^2=4.52, p<0.25) the null hypothesis is not rejected.

When evaluating the level of education of the population as a risk factor in the formation of neoplasms, it is known that although there is no statistically significant difference among women (χ^2=3.09, p<0.5), the null hypothesis is rejected in general and among men (χ^2=10, respectively, 53, p<0.025 χ^2=8.37, p<0.05).

Although a significant difference was noted for marital status overall and between men (χ^2=11.67, p<0.005, χ^2=9.75, p<0.01 respectively), the null hypothesis was not rejected among women (χ^2=2.72, p<0.5). According to social status (in general, men and women respectively χ^2=2.39, p<0.5, χ^2=0.38, p>0.5, χ^2=6.46, p<0.1) no statistically significant difference was noted in the group.

Although there was a significant difference between women (χ^2=9.01, p<0.005, χ^2=19.12, p<0.001) and men (χ^2=2.22, p<0, 25) the null hypothesis is not rejected.

DISCUSSION OF OBTAINED RESULTS

According to our results, UND increased by 4% per 100,000 people, with an absolute increase of +10% in 2010-2014.

The increase was different for different diseases. Thus, the absolute increase in prostate gland diseases was +6%, in urinary stone disease +36.5%, and the absolute increase in prostate, bladder and kidney cancer was +22%, +41%, +31%, respectively.

According to the ranking of the diseases, inflammatory diseases of the kidneys and urinary tract are in the first place, BPH is on the second place, USD is on the third place, glomerulonephritis, diabetic nephropathy and others are in the following places.

Prostate gland diseases accounted for 30.2% of all uro-nephrological diseases. In 2010-2014, the incidence of prostate cancer was 13.14 per

100,000 people, which accounted for 35.5% of other oncological diseases.

In LAER, the prevalence of USD was 0.09% in 2010-2014, including 0.11% among men and 0.06% among women ($p<0.001$), which increased by 29.4% during these years.

Kidney cancer cases increased by 19.0%, including 26.4% among men and 9.1% among women. During these years, kidney cancer accounted for 27.1% of other oncourological diseases, including 25.5% among men and 54.2% among women.

The 1-5-year survival rates with CKF were determined as 0.8043, 0.6728, 0.5382, 0.4573, 0.5382, respectively.

It was found that the length of life of patients was significantly dependent on the etiological cause of CKF. Thus, four-, five-, six-, seven-, and eight-year survival rates in the case of CKF associated with diabetes were very low compared to other groups (34.62±4.74, 26.63±4.64, respectively) 23.96±4.54, 22.47±4.50, 22.47±4.50).

RESULTS

Uro-nephrological total morbidity index based on application in LAER was 841.28±9,84$^{0}/_{0000}$, and total mortality index was 34,5±6.3$^{0}/_{00000}$ showing differences between men and women (44.2±10,12$^{0}/_{00000}$ and 24.5±7,55$^{0}/_{00000}$, respectively) it was.

The average chronological morbidity in LAER in 2010-2014 was 863.14±14.08$^{0}/_{0000}$ among men and 446.84±10.17$^{0}/_{0000}$ among women, and the difference between them was statistically significant. Also, the increase of many diseases with increasing age has been noted.

UND is unevenly distributed in the administrative districts of LAER.

In inflammatory diseases, sex, place of residence and education, as well as gender, age, average body weight index, marital status, social status and presence of co-morbidities were of particular importance in urinary stone disease.

PRACTICAL RECOMMENDATIONS

1. Taking into account the presence of important risk factors such as gender and age, ensure that men and the older population are involved in more intensive preventive examinations.
2. Ensuring the establishment of a health system corresponding to different indicators of uro-nephrological diseases in separate administrative regions of LAER.
3. Carrying out further improvement of nephrological, endocrinological and urological services, taking into account chronic glomerulonephritis, diabetic nephropathy and USD, which are the main etiological causes of CKF.
4. Ensuring the creation of uro-nephrology department in LRMX located in the central city of the region in order to improve the inpatient uro-nephrology service of LAER.

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LIST OF ABBREVIATIONS

BPH	–	Benign Prostatic Hyperplasia
CKF	–	Chronic kidney failure
LAER	–	Lankaran-Astara economic region
UND	–	Uro-nephrological diseases
USD	–	Urinary stone disease

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