

EVALUATION OF TRENDS IN ONCOLOGICAL CARE FOR KIDNEY CANCER IN KAZAKHSTAN

S.S. DYAKOV¹⁻³, Zh.B. TELMANOVA^{1,4,5}, Z.A. BILYALOVA^{1,5}, Zh.R. AZHETOVA^{4,1}, G.S. IGISSINOVA^{6,1}, S.T. OROZBAEV^{4,1}, I.O. KUDAIBERGENOVA^{2,5}, N.S. IGISSINOV^{1,2,4,5}

¹"Central Asian Institute for Medical Research" Public Association, Astana, the Republic of Kazakhstan;

²"Akhunbaev Kyrgyz State Medical Academy" State Enterprise, Bishkek, the Kyrgyz Republic;

³RSE ON REM "National Scientific Centre of Traumatology and Orthopaedics named after Acad. N.D. Batpenov" of the Ministry of Healthcare of the Republic of Kazakhstan, Astana, the Republic of Kazakhstan;

⁴"Astana Medical University" NCJSC, Astana, the Republic of Kazakhstan;

⁵Eurasian Institute for Cancer Research" Public Association, Bishkek, the Kyrgyz Republic;

⁶"Asfendiyarov Kazakh National Medical University" NCJSC, Almaty, the Republic of Kazakhstan

ABSTRACT

Relevance: Worldwide, kidney cancer ranks sixth among the most frequently diagnosed cancers in men and 10th in women, accounting for 5% and 3% of all cancer diagnoses, respectively. In 2020, IARC reported 431,288 new cases and 179,368 deaths from kidney cancer worldwide. By 2040, they expect an increase of 40.4% in kidney cancer incidence (605,726 cases) and 59.4% in kidney cancer mortality (285,906 deaths).

The study aimed to analyze some kidney cancer indicators (incidence, mortality, early diagnosis, neglect, morphological verification) to evaluate the oncological care in Kazakhstan in 2010-2019.

Methods: A retrospective study using descriptive and analytical methods of biomedical statistics was used as the primary method.

Results: From 2010 to 2019, 10,966 new cases of kidney cancer and 3,866 deaths from this pathology were registered in Kazakhstan. Kidney cancer incidence increased from $5.6 \pm 0.2\text{‰}$ (2010) to $6.7 \pm 0.2\text{‰}$ in 2019 ($p=0.000$). Over time, mortality rates from kidney cancer tended to decrease from $2.6 \pm 0.1\text{‰}$ (2010) to $1.9 \pm 0.1\text{‰}$ in 2019 ($p=0.000$). The study reveals a trend: the indicators of early diagnosis (the share of patients with stage I-II) improved from 50.7% (2010) to 69.1% in 2019, and, accordingly, the balance of neglected patients decreased significantly with stage III (from 31.2% to 14.6%) and with stage IV (from 18.1% to 16.0%). Morphological verification indicators for KC improved by 44.7%, from 58.5% and 84.6%, respectively, in 2010 and 2019.

Conclusion: The increase in kidney cancer incidence dictates further study of cause-and-effect relationships with risk factors for developing effective preventive measures and screening programs.

Keywords: Kidney cancer, incidence, mortality, early diagnosis, neglect, morphological verification, Kazakhstan.

Introduction: Kidney cancer ranks sixth most frequent cancer in men and tenth in women worldwide, accounting for 5% and 3% of all oncological diagnoses, respectively [1]. In 2020, IARC reported 431,288 new cases and 179,368 deaths from kidney cancer worldwide. By 2040, they expect an increase of 40.4% in kidney cancer incidence (605,726 cases) and 59.4% in kidney cancer mortality (285,906 deaths) [3]. The underlying causes for this increase in incidence have yet to be studied.

Kidney cancer incidence rates are increasing in general [4]. In higher-income countries, this may be due, among other things, to an increased frequency of incidental detection of renal masses when doing abdominal imaging for non-specific musculoskeletal or gastrointestinal complaints. Even though most detected lesions are small tumors, the locally advanced disease is still diagnosed in many patients. At that, up to 17% of patients have distant metastases at diagnosis [5].

Kidney cancer incidence and mortality vary significantly between countries. Potential risk factors include behavioral [6, 7] and genetic factors [8, 9], concomitant

diseases [10-12], and taking analgesics [13, 14]. Constant risk factors for kidney cancer are smoking [15, 16], obesity [15, 17], hypertension [18, 19], and chronic kidney disease [20, 21].

Early detection and screening are priorities in kidney cancer research [22]. Early diagnosis means better survival. Thus, 5-year survival with stage I and IV kidney cancer amount to 83% and 6%, respectively [23]. So, anti-cancer measures aimed at early detection and prevention of kidney cancer increase the quality of cancer care.

The study aimed to analyze some kidney cancer indicators (incidence, mortality, early diagnosis, neglect, morphological verification) to evaluate the oncological care in Kazakhstan in 2010-2019.

Materials and methods:

Case registration and patient enrollment. The research object was the data obtained from annual forms no. 7 and 35 of the Ministry of Healthcare of the Republic of Kazakhstan on kidney cancer (ICD 10 – C64) for 2010-2019 on incidence, mortality, early detection, neglect, and morphological verification.

Population denominators. Population denominators for calculating incidence rates were provided by the Bureau of National Statistics. We used data on the republic population for the respective regions; all data were obtained from the official website [24].

Statistical analysis. The primary method to analyze incidence was a retrospective study using descriptive and analytical methods of cancer epidemiology. Standardized incidence rates were calculated for eighteen different age groups (0-4, 5-9, ..., 80-84, and 85+) using the World population standard proposed by WHO with the recommendations of the National Cancer Institute (2013) [25].

Extensive, crude, and age-related incidence rates were determined by the generally accepted methodology used in sanitary statistics. The average annual values (M, P), average error (m), Student's criterion, 95% confidence interval (95% CI), and average annual growth/decline rates (T, %) were calculated. All calculation formulas used in the article are described in textbooks on statistics [26, 27]. Trends were determined using the least squares method, and the average annual growth rates were calculated using the geometric mean. We reviewed and processed the received materials using the Microsoft 365 software package (Excel, Word, PowerPoint). The Student's criterion was calcu-

lated when comparing average values using online statistical calculators [28].

Ethics approval. The review and approval by the ethics board were not required since this study included the analysis of publicly available administrative data and did not involve contacts with individuals. The data provided comply with the Law of the Republic of Kazakhstan No. 257-IV of March 19, 2010, "On State Statistics" [29]. The information in the summary report is confidential and can only be used for statistical purposes following the principles of the World Medical Association [30].

Results: From 2010 to 2019, 10,966 new cases of kidney cancer and 3,866 deaths from this pathology were registered in Kazakhstan. The average annual crude incidence of kidney cancer was $6.3 \pm 0.1\text{‰}$ (95% CI=6.0-6.5) and increased from $5.6 \pm 0.2\text{‰}$ (2010) to $6.7 \pm 0.2\text{‰}$ in 2019 ($p=0.000$). Over time, mortality rates from kidney cancer tended to decrease from $2.6 \pm 0.1\text{‰}$ (2010) to $1.9 \pm 0.1\text{‰}$ in 2019, and the difference was statistically significant ($p=0.000$). Over time, the mortality from kidney cancer decreased statistically significantly ($t=4.95$, $p=0.000$) from $2.6 \pm 0.1\text{‰}$ in 2010 to $1.9 \pm 0.1\text{‰}$ in 2019, and the average annual crude mortality from kidney cancer was $2.2 \pm 0.1\text{‰}$ (95% CI=2.0-2.4).

Trends in leveled crude incidence and mortality from kidney cancer in Kazakhstan are presented in Figure 1.

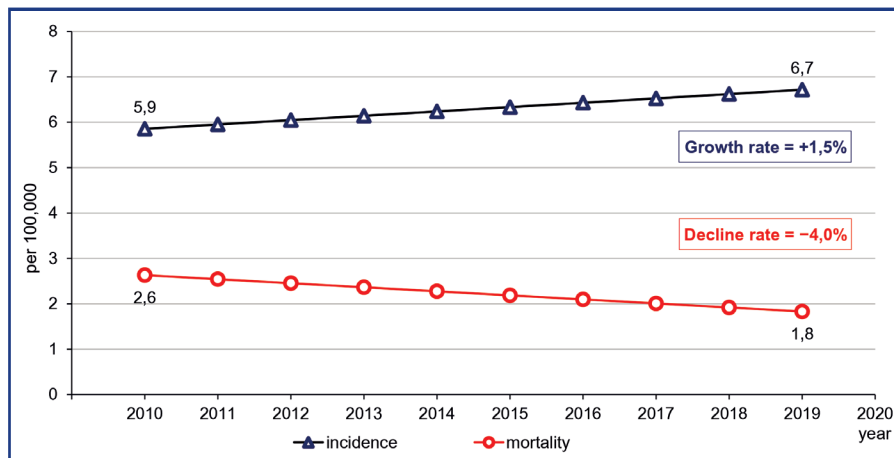


Figure 1 – Trends in leveled incidence and mortality from kidney cancer in Kazakhstan, 2010-2019

The average annual growth rate of leveled incidence rates was +1.5%, and the average annual decline rate of mortality was -4.0% (Figure 1).

Trends in leveled kidney cancer incidence by stages showed an increase in stage I-II cases and a decline in stage III cases. The number of cases registered at stage IV has grown insignificantly (Figure 2).

Over time, the share of patients with stage I-II kidney cancer improved from 50.7% in 2010 to 69.1% in 2019 (Figure 3), while an average annual leveled rate growth of +2.9%.

The share of patients with stage III decreased significantly, from 31.2% in 2010 to 14.6% in 2019 (Figure 3), with an average annual adjusted decline of -6.7%.

Over time, the share of stage IV kidney cancer cases decreased from 18.1% in 2010 to 16.0% in 2019 (Figure 3), with an average annual adjusted decline of -0.8%.

The share of morphologically verified kidney cancer cases increased from 58.5% in 2010 to 84.6% in 2019 (Growth rate = +1.2%) (Figure 4).

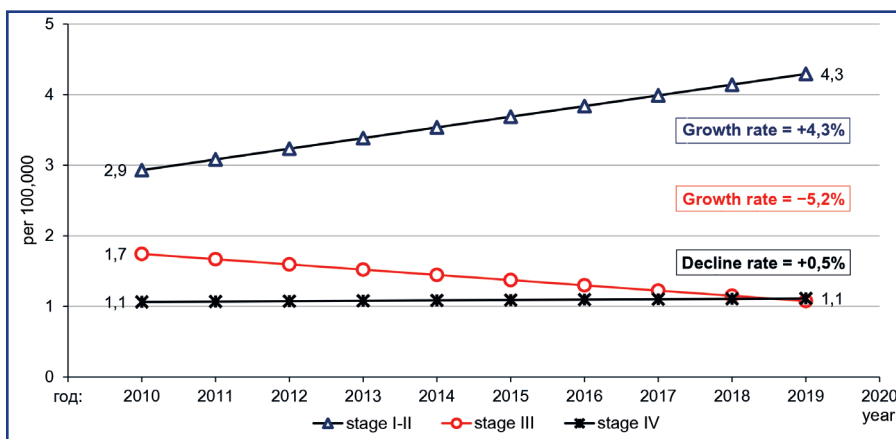


Figure 2 – Trends in leveled kidney cancer incidence rates by stage, Kazakhstan, 2010-2019

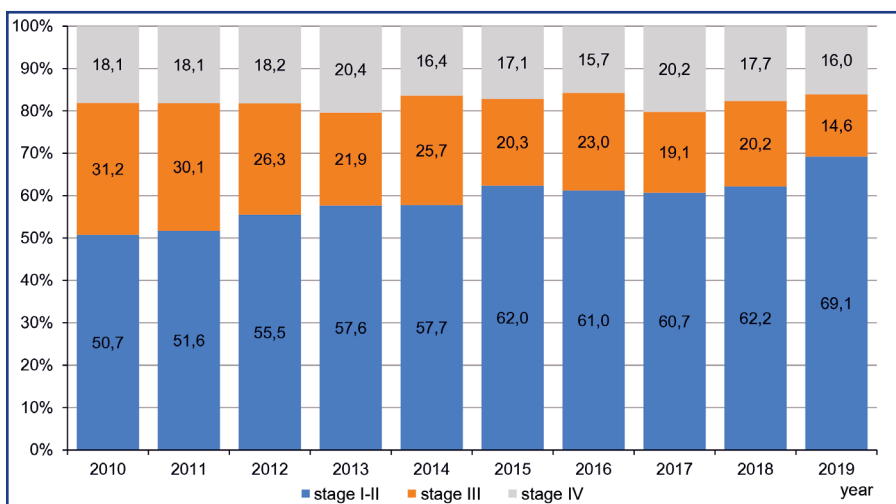


Figure 3 – Dynamics in kidney cancer early diagnosis (stage I-II) and neglect (stages III and IV) in Kazakhstan, 2010-2019

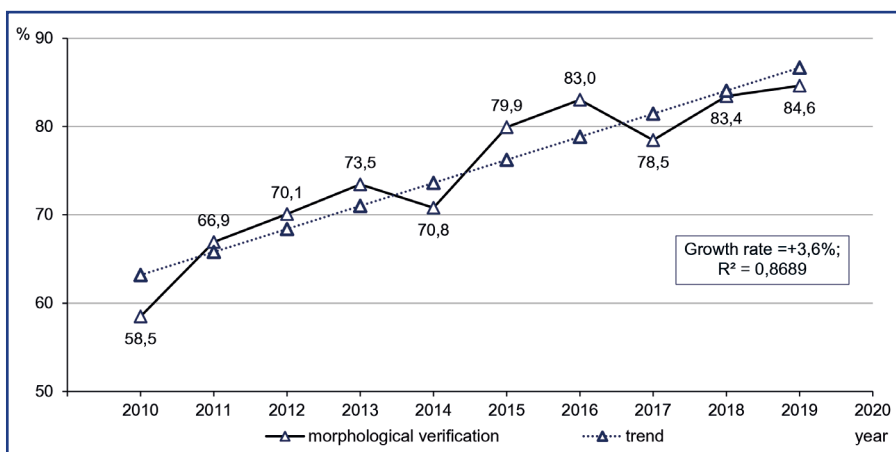


Figure 4 – Dynamics in morphological verification for kidney cancer, Kazakhstan, 2010-2019

Discussion: We observe a growth in incidence and a decline in mortality from kidney cancer in the Republic of Kazakhstan. Similar trends were observed in North America, Europe, and Asia [4, 31, 32].

The most important prognostic determinants of 5-year survival are the tumor stage, grade, local spread, metastases in regional lymph nodes, and metastatic signs at diagnosis. Kidney cancer is a slow-growing tu-

mor that often remains clinically silent during most of its course. In 30% of cases, it is diagnosed by chance. The occurrence of symptoms is often associated with the disease progression. In 30% of cases, this cancer is metastatic; 25% of cases are locally advanced. Today, there is no clear evidence of the efficiency of early detection [33]. However, stratifying the population depending on the risk of developing kidney cancer could

help to develop an effective screening program aimed at the highest-risk group. The screening criteria, like screening start age and frequency, could be adjusted depending on the predicted risk for each person.

In the Republic of Kazakhstan, the absolute number of people first diagnosed with kidney cancer increased by 33.5% during the study period. Kidney cancer incidence per 100,000 population has increased by 17.7% over ten years. At the same time, there was a growing trend of kidney cancer stage I-II early detection and, respectively, a decrease in stage III incidence.

From 2010 to 2019, the absolute number of people who died from kidney cancer in Kazakhstan decreased by 16.7%. The mortality rate from kidney cancer per 100,000 population went down by 26.5% over ten years.

In the study period, the number of patients diagnosed with stage I-II kidney cancer increased by 81.8%, stage III cases decreased by 37.4%, and stage IV cases increased by 18.4%. Early detection showed a significant positive dynamic, and the indicators of neglect generally declined.

Conclusion: The increase in kidney cancer incidence dictates further study of cause-and-effect relationships with risk factors for developing effective preventive measures and screening programs. Reducing the burden of kidney cancer in Kazakhstan requires joint efforts. The use of interdisciplinary approaches based on new knowledge, including the results of epidemiological studies, can give a new impetus to prevention and early detection.

References:

1. Siegel R.L., Miller K.D., Jemal A. *Cancer statistics, 2018* // *CA Cancer J Clin.* – 2018. – Vol. 68. – P. 7-30. <https://doi.org/10.3322/caac.21442>;
2. Ferlay J., Ervik M., Lam F., Colombet M., Mery L., Piñeros M. *Global Cancer Observatory: Cancer Today.* – Lyon, France: International Agency for Research on Cancer, 2020. <https://gco.iarc.fr/today/data/factsheets/cancers/29-Kidney-fact-sheet.pdf>. 01.11.2022;
3. Ferlay J., Ervik M., Lam F., Colombet M., Mery L., Piñeros M. *Global Cancer Observatory: Cancer Tomorrow.* – Lyon, France: International Agency for Research on Cancer, 2020. https://gco.iarc.fr/tomorrow/en/dataviz/tables?cancers=29&single_unit=50000&mode=population. 01.11.2022;
4. Znaor A., Lortet-Tieulent J., Laversanne M., Jemal A., Bray F. *International variations and trends in renal cell carcinoma incidence and mortality* // *Eur. Urol.* – 2015. – Vol. 67. – P. 519-530. <https://doi.org/10.1016/j.eururo.2014.10.002>;
5. Capitanio U., Montorsi F. *Renal cancer* // *Lancet.* – 2016. – Vol. 387. – P. 894-906. [https://doi.org/10.1016/S0140-6736\(15\)00046-X](https://doi.org/10.1016/S0140-6736(15)00046-X);
6. Behrens G., Leitzmann M.F. *The association between physical activity and renal cancer: a systematic review and meta-analysis* // *Br. J. Cancer.* – 2013. – Vol. 108. – P. 798-811. <https://doi.org/10.1038/bjc.2013.37>;
7. Yang X.F., Ma G., Feng N.H., Yu D.S., Wu Y., Li C. *Twist2 and CD24 expression alters renal microenvironment in obesity-associated kidney cancer* // *Eur. Rev. Med. Pharmacol. Sci.* – 2018. – Vol. 22. – P. 358-364. https://doi.org/10.26355/eurrev_201801_14180;
8. Maher E.R. *Hereditary renal cell carcinoma syndromes: diagnosis, surveillance, and management* // *World J. Urol.* – 2018. – Vol. 36(12). – P. 1891-1898. <https://doi.org/10.1007/s00345-018-2288-5>;
9. Menko F.H., Maher E.R. *Diagnosis and management of hereditary renal cell cancer* // *Recent Results Cancer Res.* – 2016. – Vol. 205. – P. 85-104. https://doi.org/10.1007/978-3-319-29998-3_6;

10. Cheungpasitporn W., Thongprayoon C., O'Corragain O.A., Edmonds P.J., Ungprasert P., Kittanamongkolchai W., Erickson S.B. *The risk of kidney cancer in patients with kidney stones: a systematic review and meta-analysis* // *QJM.* – 2015. – Vol. 108. – P. 205-212. <https://doi.org/10.1093/qjmed/hcu195>;

11. Hendriks S.H., Schrijnders D., van Hateren K.J., Groenier K.H., Siesling S., Maas A.H.E.M., Landman G.W.D., Bilo H.J.G., Kleefstra N. *Association between body mass index and obesity-related cancer risk in men and women with type 2 diabetes in primary care in the Netherlands: a cohort study (ZODIAC-56)* // *BMJ Open.* – 2018. – Vol. 8. – Art. ID: e018859. <https://doi.org/10.1136/bmjopen-2017-018859>;

12. Pearson-Stuttard J., Zhou B., Kontis V., Bentham J., Gunter M.J., Ezzati M. *Worldwide burden of cancer attributable to diabetes and high body-mass index: a comparative risk assessment* // *Lancet. Diabetes Endocrinol.* – 2018. – Vol. 6 (6). – P. e6-e15. [https://doi.org/10.1016/S2213-8587\(18\)30150-5](https://doi.org/10.1016/S2213-8587(18)30150-5);

13. Tahbaz R., Schmid M., Merseburger A.S. *Prevention of kidney cancer incidence and recurrence: lifestyle, medication, and nutrition* // *Curr. Opin. Urol.* – 2018. – Vol. 28(1). – P. 62-79. <https://doi.org/10.1097/MOU.0000000000000454>;

14. Karami S., Daughtery S.E., Schwartz K., et al. *Analgesic use and risk of renal cell carcinoma: A case-control, cohort and meta-analytic assessment* // *Int. J. Cancer.* – 2016. – Vol. 139(3). – P. 584-592. <https://doi.org/10.1002/ijc.30108>;

15. Petejova N., Martinek A. *Renal cell carcinoma: Review of etiology, pathophysiology and risk factors* // *Biomed Pap.* – 2016. – Vol. 160(2). – P. 183-194. <https://doi.org/10.5507/bp.2015.050>;

16. Lotan Y., Karam J.A., Shariat S.F., Gupta A., Roupert M., Bensalah K., Margulis V. *Renal-cell carcinoma risk estimates based on participants in the prostate, lung, colorectal, and ovarian cancer screening trial and national lung screening trial* // *Urol. Oncol.* – 2016. – Vol. 34(167). – P. e9-e16. <https://doi.org/10.1016/j.urolonc.2015.10.011>;

17. Gild P., Ehdaie B., Kluth L.A. *Effect of obesity on bladder cancer and renal cell carcinoma incidence and survival* // *Curr Opin Urol.* – 2017. – Vol. 27(5). – P. 409-414. <https://doi.org/10.1097/MOU.0000000000000425>;

18. Chien C.C., Han M.M., Chiu Y.H., Wang J.J., Chu C.C., Hung C.Y., Sun Y.M., Yeh N.C., Ho C.H., Lin C.C., Kao H.Y., Weng S.F. *Epidemiology of cancer in end-stage renal disease dialysis patients: a national cohort study in Taiwan* // *J. Cancer.* – 2017. – Vol. 8. – P. 9-18. <https://doi.org/10.7150/jca.16550>;

19. Mazzucotelli V., Piselli P., Verdrosi D., Cimaglia C., Cancarini G., Serraino D., Sandrini S. *De novo cancer in patients on dialysis and after renal transplantation: north-western Italy, 1997-2012* // *J. Nephrol.* – 2017. – Vol. 30. – P. 851-857. <https://doi.org/10.1007/s40620-017-0385-y>;

20. Saly D.L., Eswarappa M.S., Street S.E., Deshpande P. *Renal Cell Cancer and Chronic Kidney Disease* // *Adv Chronic Kidney Dis.* – 2021. – Vol. 28(5). – P. 460-8.e1. <https://doi.org/10.1053/j.ackd.2021.10.008>;

21. Lowrance W.T., Ordoñez J., Udaltsova N., Russo P., Go A.S. *CKD and the risk of incident cancer* // *J. Am. Soc. Nephrol.* – 2014. – Vol. 25. – P. 2327-2334. <https://doi.org/10.1681/ASN.2013060604>;

22. Rossi S.H., Fielding A., Blick C., Handforth C., Brown J.E., Stewart G.D. *Setting research priorities in partnership with patients to provide patient-centered urological cancer care* // *Eur. Urol.* – 2019. – Vol. 75. – P. 891-893. <https://doi.org/10.1016/j.eururo.2019.03.008>;

23. Cancer Research UK. *Bladder cancer statistics* // www.cancerresearchuk.org/health-professional/cancer-statistics/statistics-by-cancer-type/bladder-cancer. 09.11.2022;

24. Byuro nacional'noj statistiki Agentstva po strategicheskomu planirovaniyu i reformam Respubliki Kazaxstan. *Demograficheskaya statistika. [Bureau of National Statistics of the Agency for strategic planning and reforms of the Republic of Kazakhstan. Demographic statistics. (in Russ.).]* // stat.gov.kz/official/industry/61/statistic/6;

25. Ahmad O.E., Boschi-Pinto C., Lopez A.D., Murray C.J.L., Lozano R., Inoue M. *Age standardization of rates: a new WHO standard.* – GPE Discussion Paper Series: No.31. – EIP/GPE/EBD World Health Organization, 2001. https://cdn.who.int/media/docs/default-source/gho-documents/global-health-estimates/gpe_discussion_paper_series_paper31_2001_age_standardization_rates.pdf. 21.11.2022;

26. Merkov A.M., Polyakov L.E. *Sanitarnaya statistika. – Leningrad: Medicina, 1974 g. – 384 s. [Merkov A.M., Polyakov L.E. Sanitary statistics. – Leningrad: Medicine, 1974 – P. 384. (in Russ.); https://www.studmed.ru/merkov-am-polyakov-le-sanitarnaya-statistika_a726c873f9b.html*

27. Glants S. Mediko-biologicheskaya statistika / Per. s angl. – M.: Praktika, 1998. – 459 s. [Glants S. Biomedical statistics / Transl. from English. – M.: Practice, 1998. – P. 459. (in Russ.)]. https://elementy.ru/catalog/6208/Glants_S_Mediko_biologicheskaya_statistika_PDF_6_Mb_genetics_kemsu_ru_sites_default_files_Glanc_Mediko_biologicheskaya_statistika1999_PDF

28. Raschet t-kriteriya St'yudenta pri sravnenii srednix velichin (online kal'kulyator) [Calculation of Student's t-test when comparing averages (online calculator) (in Russ.)] // medstatistic.ru/calculators/averagetestudent.html. 21.11.2022;

29. Zakon Respubliki Kazaxstan: O gosudarstvennoj statistike, utv. 19 marta 2010 goda, № 257-IV. [The law of the Republic of Kazakhstan: About state statistics, approved on March 19, 2010, No.257-IV (in Russ.)] // <http://adilet.zan.kz/rus/docs/Z100000257>

30. WMA Declaration of Helsinki – Ethical Principles for Medical Research Involving Human Subjects. – 2013. [www.wma.net/policies-](http://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/)

[post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/](http://www.wma.net/policies-post/wma-declaration-of-helsinki-ethical-principles-for-medical-research-involving-human-subjects/). 21.11.2022;

31. Alkhateeb S.S., Alkhateeb J.M., Alrashidi E.A. Increasing trends in kidney cancer over the last 2 decades in Saudi Arabia // Saudi Med J. – 2015. – Vol. 36. – P. 698-703. <https://doi.org/10.15537/smj.2015.6.10841>;

32. Arabsalmani M., Mohammadian-Hafshejani A., Ghoncheh M., Hadadian F., Towhidi F., Vafae K., Salehiniya H. Incidence and mortality of kidney cancers, and human development index in Asia; a matter of concern // J. Nephropathol. – 2016. – Vol. 6. – P. 30-42. <https://doi.org/10.15171/jnp.2017.06>;

33. Thorstenson A., Bergman M., Scherman-Plogell A.H., Hosseinnia S., Ljungberg B., Adolfsson J., Lundstam S. Tumour characteristics and surgical treatment of renal cell carcinoma in Sweden 2005-2010: a population-based study from the national Swedish kidney cancer register // Scand. J. Urol. – 2014. – Vol. 48. – P. 231-238. <https://doi.org/10.3109/21681805.2013.864698>.

АНДАТПА

ҚАЗАҚСТАНДАҒЫ БҮЙРЕК ОБЫРЫ КЕЗІНДЕГІ ОНКОЛОГИЯЛЫҚ КӨМЕК КӨРСЕТКІШТЕРІНІҢ ӨЗГЕРІСТЕРІН БАҒАЛАУ

С.С. Дьяков^{1,3}, Ж.Б. Тельманова^{1,4,5}, З.А. Билялова^{1,5}, Ж.Р. Ажетова^{4,1}, Г.С. Игиснинова^{6,1}, С.Т. Орозбаев^{4,1}, И.О. Кудайбергенова^{2,5}, Н.С. Игиснинов^{1,2,4,5}

¹«Central Asian Institute for Medical Research» ҚБ, Астана, Қазақстан Республикасы;

²«Ахунбаев атындағы Ұлттық мемлекеттік медицина академиясы» ММ, Бішкек, Қырғыз Республикасы;

³ҚР ДСМ «Академик Н.Д. Батпеннов атындағы Ұлттық Травматология және ортопедия ғылыми орталығы» ШЖҚ РМК, Астана, Қазақстан Республикасы;

⁴«Астана медицина университеті» КеАҚ, Астана, Қазақстан Республикасы;

⁵«Eurasian Institute for Cancer Research» ҚБ, Бішкек, Қырғыз Республикасы;

⁶«С.Ж. Асфендияров атындағы Қазақ ұлттық медицина университеті» КеАҚ, Алматы, Қазақстан Республикасы

Өзектілігі: Бүкіл әлемде бүйрек қатерлі ісігі (БҚІ) ерлерде жиі диагноз қойылған қатерлі ісіктердің алтыншы, ал әйелдерде 10-шы орында, сәйкесінше барлық қатерлі ісік диагноздарының 5% және 3% құрайды. 2020 жылы Халықаралық қатерлі ісіктерді зерттеу агенттігінің мәліметтері бойынша әлемде БҚІ 431 288 жаңа жағдай және 179 368 өлім тіркелді, ал 2040 жылға қарай бүйрек қатерлі ісігінің жаңа жағдайлары 40,4%-ға (605 726 жағдай), ал осы патологиядан қайтыс болғандар саны 59,4%-ға (285 906 өлім) өседі деп болжанауда.

Зерттеудің мақсаты: Қазақстандағы онкологиялық көмектің 2010–2019 жылдардағы қызметін бағалау үшін бүйрек обыры бойынша кейбір көрсеткіштерді (сырқаттанушылық, өлім-жітім, ерте диагностика, қараусыздық, морфологиялық верификация) талдау.

Зерттеу әдістері: Зерттеу материалы Қазақстан Республикасы Денсаулық сақтау министрлігінің 2010–2019 жылдардағы БҚІ (АХЖ 10 – С64) қатысты № 7 және 35 жылдық нысандары – сырқаттанушылық, өлім – жітім, ерте диагностика, қараусыздық, морфологиялық верификация деректері болды. Негізгі әдіс ретінде биомедициналық статистиканың сипаттамалық және аналитикалық әдістерін қолдана отырып, ретроспективті зерттеу қолданылды.

Нәтижелер: 2010–2019 жылдары республикада БҚІ-нің 10 966 жаңа жағдайы және осы патологиядан 3 866 өлім тіркелді. БҚІ-нен сырқаттанушылық $5,9 \pm 0,2\%$ (2010 ж.)-ден $6,7 \pm 0,2\%$ -ге дейін 2019 жылы өсті ($p=0,000$). Динамикада БҚІ-нен болатын өлім-жітім көрсеткіші $2,6 \pm 0,1\%$ (2010 ж.)-дан 2019 жылы $1,8 \pm 0,1\%$ -ға дейін ($p=0,000$) төмендеу үрдісіне ие болды. Зерттеу кезінде мынадай үрдіс анықталады: ерте диагностика көрсеткіштері (I-II кезеңдегі науқастардың үлес салмағы) 50,7%-дан (2010 ж.) 2019 жылы 69,1%-ға дейін жақсарды және тиісінше асқынған III саты (31,2%-дан 14,6%-ға дейін) және IV сатыдағы (18,1%-дан 16,0%-ға дейін) науқастардың үлес салмағының көрсеткіштері айтарлықтай азайды. ТІКІ кезінде морфологиялық верификация көрсеткіштері тиісінше 2010 жылдан 2019 жылға дейін 34,2%-ға, атап айтқанда 85,2%-дан 95,2%-ға дейін жақсарды.

Қорытынды: Бүйрек қатерлі ісігінің көбеюі тиімді алдын алу шаралары мен скринингтік бағдарламаларды әзірлеу үшін қауіп факторларымен себеп-салдарлық байланыстарды одан әрі зерттеуді талап етеді.

Түйінді сөздер: бүйрек қатерлі ісігі, сырқаттанушылық, өлім-жітім, ерте диагностика, қараусыздық, морфологиялық верификация.

ABSTRACT

ОЦЕНКА ИЗМЕНЕНИЙ ПОКАЗАТЕЛЕЙ ОНКОЛОГИЧЕСКОЙ ПОМОЩИ ПРИ РАКЕ ПОЧКИ В КАЗАХСТАНЕ

С.С. Дьяков^{1,3}, Ж.Б. Тельманова^{1,4,5}, З.А. Билялова^{1,5}, Ж.Р. Ажетова^{4,1}, Г.С. Игиснинова^{6,1}, С.Т. Орозбаев^{4,1}, И.О. Кудайбергенова^{2,5}, Н.С. Игиснинов^{1,2,4,5}

¹ОО «Central Asian Institute for Medical Research», Астана, Республика Казахстан

²ГУ «Кыргызская государственная медицинская академия им. Ахунбаева», Бишкек, Кыргызская Республика;

³РГП на ПХВ «Национальный научный Центр Травматологии и Ортопедии имени академика Батпеннова Н.Д. МЗ РК», Астана, Республика Казахстан

⁴НАО «Медицинский университет Астана», Астана, Республика Казахстан

⁵ОО «Eurasian Institute for Cancer Research», Бишкек, Кыргызская Республика;

⁶НАО «Казакский национальный медицинский университет им. Асфендиярова», Алматы, Республика Казахстан

Актуальность: В мире рак почки (РП) занимает шестое место среди наиболее часто диагностируемых видов рака у мужчин и 10-е место у женщин, составляя 5% и 3% всех онкологических диагнозов, соответственно. В 2020 году по данным Международно-

го агентства по исследованию рака в мире зарегистрировано 431 288 новых случаев заболевания и 179 368 смертей от рака почки, а к 2040 году прогнозируется увеличение числа новых случаев рака почки на 40,4% (605 726 случаев), а число смертей от данной патологии – на 59,4% (285 906 смертей).

Цель исследования – анализ некоторых показателей по раку почки (заболеваемость, смертность, ранняя диагностика, запущенность, морфологическая верификация) для оценки онкологической помощи Казахстана за 2010-2019 гг.

Методы: В качестве основного метода использовалось ретроспективное исследование с применением дескриптивных и аналитических методов медико-биологической статистики.

Результаты: За 2010-2019 гг. в Республике Казахстан было зарегистрировано 10 966 новых случаев РП и 3 866 смертей от данной патологии. Заболеваемость РП в динамике имела тенденцию к росту с $5,9 \pm 0,2\text{‰}$ (2010 г.) до $6,7 \pm 0,2\text{‰}$ в 2019 году ($p=0,000$). В динамике показатели смертности от РП имели тенденцию к снижению с $2,6 \pm 0,1\text{‰}$ (2010 г.) до $1,8 \pm 0,1\text{‰}$ – в 2019 году ($p=0,000$). При исследовании изучаемого периода выявляется тенденция: показатели ранней диагностики (удельный вес больных с I-II стадией) улучшились с 50,7% (2010 г.) до 69,1% в 2019 году, и соответственно показатели удельного веса запущенных больных значительно уменьшились с III стадией (с 31,2% до 14,6%) и с IV стадией (с 18,1% до 16,0%). Показатели морфологической верификации при РП улучшились почти на 44,7%, с 58,5% до 84,6% соответственно в 2010 и 2019 годах.

Заключение: Рост заболеваемости раком почки диктует дальнейшее изучение причинно-следственных связей с факторами риска для разработки эффективных профилактических мероприятий и программ скрининга.

Ключевые слова: рак почки, заболеваемость, смертность, ранняя диагностика, запущенность, морфологическая верификация.

Transparency of the study: Authors take full responsibility for the content of this manuscript.

Conflict of interest: Authors declare no conflict of interest.

Financing: Authors declare no financing of the study.

Authors' input: contribution to the study concept – Kudaibergenova I.O., Igissinov N.S., Dyakov S.S.; study design – Bilyalova Z.A., Igissinova G.S., Dyakov S.S.; execution of the study – Orozbaev S.T., Dyakov S.S.; interpretation of the study – Azhetova Zh.R., Dyakov S.S., Telmanova Zh.B.; preparation of the manuscript – Dyakov S.S., Telmanova Zh.B.

Author's data:

Dyakov Sergey S. – Researcher at the Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; Postgraduate student of Akhunbaev Kyrgyz State Medical Academy, Bishkek, the Kyrgyz Republic; Doctor of Radiation Diagnostics, Academician Batpenov N.D. National Scientific Centre of Traumatology and Orthopaedics of the Ministry of Health of the Republic of Kazakhstan, Astana, the Republic of Kazakhstan; tel. +77024622269, e-mail: sergey_djakov@mail.ru, ORCID ID: <https://orcid.org/0000-0001-7566-7094>;

Telmanova Zhansaya B. – Researcher at the Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; Researcher at the Eurasian Institute for Cancer Research, Bishkek, the Kyrgyz Republic; 7th-year intern at the General Medical Practice Faculty of Astana Medical University, Astana, the Republic of Kazakhstan, tel. +77075059398, e-mail: telmanova.zhansaya@gmail.com, ORCID ID: <https://orcid.org/0000-0002-2364-6520>;

Bilyalova Zarina A. – Ph.D. in public healthcare, Ass. Prof., Senior Researcher at the Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; Senior Researcher at the Eurasian Institute for Cancer Research, Bishkek, the Kyrgyz Republic; tel. +77051464888, e-mail: z.bilyalova@gmail.com, ORCID ID: <https://orcid.org/0000-0002-0066-235X>;

Azhetova Zhanerke R. – Associate professor of Obstetrics and Gynecology Department of Astana Medical University, Astana, the Republic of Kazakhstan; Researcher at the Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; tel. +77017398009, e-mail: azhetova@mail.ru, ORCID ID: <https://orcid.org/0000-0002-8266-1720>;

Igissinova Gulnur S. – Candidate of Medical Sciences, Associate professor of Oncology Department of Asfendiyarov Kazakh National Medical University, Almaty, the Republic of Kazakhstan; Founder and Chairman of Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; e-mail: gulnurs@list.ru, ORCID ID: <https://orcid.org/0000-0001-6881-2257>;

Orozbaev Serikbai T. – Candidate of Medical Sciences, Professor, Associate Professor of Surgical Diseases with courses in Cardiothoracic surgery and Maxillofacial Surgery Department of Astana Medical University, Astana, the Republic of Kazakhstan; tel. +77015339881, e-mail: orazbaev_s.t@mail.ru, ORCID ID: <https://orcid.org/0000-0003-3895-0426>;

Kudaibergenova Indira O. – Candidate of Medical Sciences, Professor, Rector of Akhunbaev Kyrgyz State Medical Academy, Bishkek, the Kyrgyz Republic; Senior Researcher at the Eurasian Institute for Cancer Research, Bishkek, the Kyrgyz Republic; tel. +0(312)540495, e-mail: k_i_o2403@mail.ru, ORCID ID: <https://orcid.org/0000-0003-3007-8127>;

Igissinov Nurbek S. (corresponding author) – Doctor of Medical Sciences, Professor, Head of Central Asian Institute for Medical Research, Astana, the Republic of Kazakhstan; Professor of Surgical Diseases with courses of Cardiothoracic Surgery and Maxillofacial Surgery Department of Astana Medical University, **Astana, 010000, Beibitshiiik str., 49A, the Republic of Kazakhstan**; Founder and Chairman of Eurasian Institute for Cancer Research, Bishkek, the Kyrgyz Republic; tel. +77024293421, e-mail: n.igissinov@gmail.com, ORCID ID: <https://orcid.org/0000-0002-2517-6315>.