

# Kazakhstan

Formation of the Republican Scientific Center of Neurosurgery (RSCN) in [Astana](#), the new capital of Kazakhstan, has allowed improvements in neurosurgery in this country on a qualitatively new level. The latest achievements in neuro-oncologic, spine, pediatric, and vascular neurosurgery are available in the RSCN. The center has come into being as a result of dynamic economic development in Kazakhstan. The RSCN is ready to become a leading neurosurgical center in the central Asia region <sup>1)</sup>.

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The Role of the Asian Congress of Neurological Surgeons in neurosurgery development of Kazakhstan can be read in the article of Akshulakov S. Role of the Asian Congress of Neurological Surgeons in neurosurgery development of Kazakhstan. Asian J Neurosurg. 2012 Jul;7(3):107-8. doi: 10.4103/1793-5482.103702 <sup>2)</sup>.

## Primary malignant central nervous system

A general trend of increase in the number of patients with malignant tumors of the central nervous system in Kazakhstan was determined and the potential of their increase was evaluated, which can be due to changes in the morbidity risk and age specifics, as well as the increase in population <sup>3)</sup>.

A study was conducted to evaluate the one-year survival rate of patients with primary malignant central nervous system (CNS) tumors after surgical treatment in Kazakhstan. Retrospective data of patients undergoing operations in the Department of Central Nervous System Pathology in the JSC National Centre for Neurosurgery in the period from 2009 to 2011 were used as the research material. Kaplan-Meier survival analysis was performed with the following information: gender, date of birth, place of residence, diagnosis according to ICD- 10, the date of the operation, the morphological type of tumor, clinical stage, state at the end of the first year of observation, and the date of death. The study was approved by the ethical committee of the JSC National Centre for Neurosurgery. The overall one-year overall survival rate (n=152) was 56.5% (95% confidence interval (CI): 50.2-62.7), and 79.5% (95% CI 72.2-86.8) and 33.1% (95% CI: 21.0-42.3) for Grades I-II (n=76) and Grades III-IV (n=76), respectively. Significant prognostic factors which affected the survival rate were age and higher tumor grade (Grades III-IV), corresponding with results described elsewhere in the world <sup>4)</sup>.

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A study has revealed that younger, [smoking](#) patients with stage 3 [arterial hypertension](#) are at higher risk for [Ruptured intracranial aneurysms](#) (RIA) . [Small intracranial aneurysms](#) (< 6 mm) and location on ACA had increased odds of rupture, while larger aneurysms on internal carotid arteries had lower odds <sup>5)</sup>

<sup>1)</sup>

Akshulakov SK, Zelman V. Neurosurgical center in Astana, capital of Kazakhstan. World Neurosurg. 2010 Oct-Nov;74(4-5):425-9. doi: 10.1016/j.wneu.2010.10.037. PubMed PMID: 21492582.

<sup>2)</sup>

Akshulakov S. Role of the Asian Congress of Neurological Surgeons in neurosurgery development of Kazakhstan. Asian J Neurosurg. 2012 Jul;7(3):107-8. doi: 10.4103/1793-5482.103702. PubMed PMID: 23293664; PubMed Central PMCID: PMC3532755.

3)

Igissinov N, Akshulakov S, Kerimbayev T, Adilbekov Y, Aldiyarova N, Rakhimbekov A, Akpolatova G, Tarzhanova D. Malignant tumors of the central nervous system in Kazakhstan: component analysis of incidence dynamics. *Asian Pac J Cancer Prev*. 2015;16(6):2289-93. PubMed PMID: 25824752.

4)

Akshulakov S, Igissinov N, Aldiyarova N, Akhmetzhanova Z, Ryskeldiyev N, Auezova R, Zhukov Y. One-year survival rate of patients with primary malignant central nervous system tumors after surgery in Kazakhstan. *Asian Pac J Cancer Prev*. 2014;15(16):6973-6. PubMed PMID: 25169556.

5)

Medetov Y, Babi A, Makhambetov Y, Menlibayeva K, Bex T, Kaliyev A, Akshulakov S. Risk factors for aneurysm rupture among Kazakhs: findings from a national tertiary. *BMC Neurol*. 2022 Sep 20;22(1):357. doi: 10.1186/s12883-022-02892-y. PMID: 36127629.

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