Kazakh Journal of Clinical Neuroscience
ISSN 1813-3908

A descriptive review

Multidisciplinary approach to the organization of neurosurgical care for patients with tumors of the chiasmal-sellar region

Received: 23 March 2025
Revised: 29 April 2025
Accepted: 11 May 2025
Published: 30 June 2025

Citation: Erlan Ayaganov, Ardak Nurbakyt, Gani Ahanov, Yermek Dyussembekov, Alibek Zhanisbayev, Ray Omirzak. Multidisciplinary approach to the organization of neurosurgical care for patients with tumors of the chiasmal-sellar region. Kaz J Clin NeuSci. 2025, 78 (2), kjcn011. https://doi.org/10.70439/1813-3908.2025.78.2.011

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Abstract

In the area of the sella turcica, there is a wide variety of pathological processes, the vast majority of which are tumors of various origins (up to 90%). For a clear morphological verification of the diagnosis, it is proposed to use a diagnostic algorithm that includes the stages of differential diagnosis of the normal adenohypophysis and neurohypophysis with tumors of the anterior and posterior lobes of the pituitary gland.

The choice of treatment method depends on several factors, such as the size and extent of the tumor, its functioning (hormone secretion), the patient's general health and preferences, the presence of complications or concomitant diseases. Surgery is often recommended as the first choice of treatment for patients with large lesions that cause visual field defects. In cases where medication or surgery is impractical or ineffective, patients may receive radiotherapy or a combination of treatments. For patients with tumors of the chiasmal-sellar region, regular monitoring and follow-up are necessary, since these tumors may require long-term drug treatment. In cases of recurrent or intractable tumors of the chiasmal-sellar region, treatment options may be difficult.

Therefore, to ensure optimal medical care for people with tumors in the adult population, accurate diagnosis, an individual treatment plan and close cooperation of medical professionals are necessary. In neurosurgery, a multidisciplinary approach is crucial for addressing the complexity of neurological conditions. This collaborative model involves a team of specialists, such as neurosurgeons, neurologists, neuroradiologists, oncologists, and rehabilitation experts.

Key words: neurosurgery, neurosurgical procedures, chiasmal-sellar region.

1. Introduction

(i) Tumours in the chiasmal-sellar region require a multidisciplinary approach to provide comprehensive and effective neurosurgical care [1].

(ii) This multidisciplinary approach involves collaboration between neurosurgeons, neurologists, endocrinologists, ophthalmologists, radiologists, and other healthcare professionals [2]. The multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumours involves the coordination and collaboration of various medical specialists. These specialists work together to develop individualized treatment plans for each patient, taking into consideration the specific characteristics of the tumour, the patient's overall health status, and the desired treatment outcomes [3].

This approach allows for comprehensive evaluation of the patient's condition and ensures that all aspects of their care, from diagnosis to treatment and follow-up, are addressed in a coordinated and timely manner. By involving multiple healthcare professionals, the multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumours allows for a more holistic and patient-centered care [4]. This approach ensures that the patient's physical, mental, and emotional needs are considered and addressed throughout their treatment journey [5].

Furthermore, the multidisciplinary approach allows for specialized expertise to be brought in at various stages of the patient's care. For example, a neurologist may provide valuable insight into the patient's neurological symptoms and help guide the treatment plan [2]. An endocrinologist may be involved in managing hormonal imbalances caused by the tumour and ensure appropriate hormone replacement therapy is initiated if necessary [6]. Consequently, the multidisciplinary approach optimizes patient outcomes by providing comprehensive and coordinated care that addresses all aspects of the patient's condition. In conclusion, the organization of neurosurgical care for patients with tumours of the chiasmal-sellar region requires a multidisciplinary approach. This approach involves the collaboration of various healthcare professionals, including neurosurgeons, neurologists, endocrinologists, ophthalmologists, radiologists, and other specialists [4]. The organization of neurosurgical care for patients with tumors in the chiasmal-sellar region requires a multidisciplinary approach. This approach involves the collaboration of various healthcare professionals, including neurosurgeons, neurologists, endocrinologists, ophthalmologists, radiologists, and other specialists. The purpose of this approach is to provide comprehensive and coordinated care that addresses all aspects of the patient's condition, including physical, mental, and emotional needs. A multidisciplinary approach is essential in the organization and delivery of neurosurgical care for patients with these tumors. This approach involves the collaboration of various healthcare professionals, including neurosurgeons, neurologists, endocrinologists, ophthalmologists, radiologists and other specialists.

Neurosurgical patient care involves the management and treatment of patients with conditions affecting the central nervous system, including brain tumors. While the multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumors has many benefits, some experts argue that it may also have drawbacks [7]. One opposing argument is that the coordination and collaboration of multiple specialists may lead to increased complexity and potential delays in decision-making. With various healthcare professionals involved, there is a risk of conflicting opinions about the most suitable treatment plan for a specific patient, which could lead to difficulties in reaching a consensus [8].

(iii) The purpose of this article is to study the aspects of a multidisciplinary approach to the organization of neurosurgical care for patients with tumors of the chiasmal-sellar region.

2. Material and methods

The article describes the features of diagnostics, treatment of tumors of the chiasmal-sellar region. We focused on various discussions on controversial issues regarding the issues under discussion. We also discussed the advantages of a multidisciplinary approach in providing specialized neurosurgical care.

The search included publications indexed in PubMed, Google Scholar, and Elibrary databases. Combinations of keywords such as “neurosurgery”, “neurosurgical procedures”, “chiasmal-sellar region”, and “multidisciplinary approach” were used. Inclusion criteria were:

https://doi.org/10.70439/1813-3908.2025.78.2.011

original research articles, review articles, meta-analyses, and clinical guideline recommendations published in English between 2014 and 2024. Exclusion criteria were: case reports, articles without access to full texts, and duplicate publications.

As a result, 22 full-text articles were identified and reviewed.

3. Discussion of pros and cons among experts

Furthermore, opponents of the multidisciplinary approach argue that it may result in increased healthcare costs. The involvement of multiple specialists and the coordination of their efforts can lead to higher expenses associated with the patient's care [9]. Additionally, opponents suggest that the patient may feel overwhelmed by the number of specialists involved, leading to confusion and potential dissatisfaction with their care [10]. Another opposing view is that the multidisciplinary approach may not always guarantee better outcomes. In some cases, the involvement of multiple specialists may not significantly improve patient outcomes, and the added complexity in decision-making and treatment planning may not necessarily lead to superior results [11]. Moreover, opponents argue that the patient's individual needs and preferences might be overlooked in the process of coordinating care among various specialists. Despite the various arguments against the multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumors, it's essential to acknowledge that different perspectives exist on the most effective organizational approach for such complex cases [4,7].

While there are differing opinions on the effectiveness of the multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumors, several studies have highlighted its positive impact on patient outcomes [13]. The holistic and patient-centered nature of this approach ensures that the physical, mental, and emotional needs of the patient are thoroughly considered and addressed throughout their treatment journey [14].

4. Advantages of a multidisciplinary approach

Research has shown that the involvement of multiple specialists in the development of individualized treatment plans leads to a more comprehensive evaluation of the patient's condition [15]. This, in turn, facilitates more personalized and effective treatment strategies. By integrating the expertise of neurosurgeons, neurologists, endocrinologists, ophthalmologists, radiologists, and other specialists, the multidisciplinary approach optimizes the management of complex cases and enhances the overall quality of care. This collaborative approach also enables a more efficient use of healthcare resources by reducing duplication of services and unnecessary testing [16]. Additionally, the multidisciplinary approach facilitates timely decision-making and coordination of care, minimizing delays in treatment initiation [4,5,14,17].

Furthermore, the coordination and collaboration of healthcare professionals within the multidisciplinary team have been demonstrated to contribute to better decision-making and treatment planning [18]. Rather than functioning in isolation, specialists work together to ensure that the most suitable interventions are recommended for each patient, minimizing potential delays and discrepancies in care [19].

It is important to acknowledge the concerns raised regarding the multidisciplinary approach, including increased complexity, potential delays, higher healthcare costs, and the risk of overlooking individual patient needs [20]. However, proponents of this approach propose that these challenges can be mitigated through effective communication, streamlined coordination, and a patient-centered care philosophy that prioritizes individualized attention and continuous feedback from the patient [21]. By implementing regular team meetings and communication platforms, healthcare professionals can ensure that information is shared efficiently and decisions are made collaboratively [16].

By integrating psychological and emotional support into the treatment framework, healthcare professionals can minimize the potential impact of the diagnosis and treatment on the mental well-being of the patient [24]. This approach fosters a sense of reassurance and personalized attention, thus

contributing to an improved patient experience throughout their care journey.

The coordination and collaboration among specialists within the multidisciplinary team play a pivotal role in streamlining treatment planning and decision-making. By collectively weighing the expertise and opinions of a diverse group of professionals, the multidisciplinary approach ensures that treatment recommendations are thoroughly deliberated [25]. This not only minimizes the likelihood of conflicting opinions but also accelerates the decision-making process, reducing potential delays in initiating appropriate interventions for the patient [26].

Moreover, the input and insights from multiple specialists enable a more comprehensive evaluation of the patient's condition, which is fundamental in developing tailored treatment plans [27]. By leveraging a multidimensional assessment, the treatment strategies can be refined to address the intricacies of the chiasmal-sellar region tumors, thereby optimizing the likelihood of favorable patient outcomes.

Looking ahead, continual efforts are integral to refining the multidisciplinary approach and addressing any inherent limitations [28]. This includes fostering a culture of ongoing education and knowledge-sharing among the multidisciplinary team to stay abreast of the latest advancements and best practices in neurosurgical care [29].

Furthermore, leveraging technological innovations and digital health platforms can facilitate enhanced communication and information exchange among the multidisciplinary team, promoting streamlined coordination and efficient decision-making processes. Embracing such advancements can foster greater efficiency and collaboration, thereby optimizing the effectiveness of the multidisciplinary approach [30].

Patient education plays a pivotal role in empowering individuals to actively participate in their care and treatment decision-making. By providing comprehensive information about the condition, treatment options, potential side effects, and ongoing support resources, patients can make informed choices and actively engage in their healthcare journey [29]. This not only enhances patient satisfaction but also contributes to improved treatment adherence and overall well-being.

Furthermore, tailored support programs can address the unique emotional and psychological challenges faced by individuals diagnosed with chiasmal-sellar region tumors. These programs offer a platform for patients to connect with others who are undergoing similar experiences, fostering a sense of community and understanding [30]. Additionally, access to counseling services and psychological support can positively impact the mental health of patients, ultimately complementing the comprehensive care provided through the multidisciplinary approach [31].

As part of future neurosurgical care coordination, integrating robust patient education and support programs into the multidisciplinary framework can further enhance the overall patient experience and contribute to favorable treatment outcomes.

5. Conclusions

The integration of patient education and support programs within the multidisciplinary approach to neurosurgical care for chiasmal-sellar region tumors holds significant potential for optimizing patient well-being and treatment success. As the healthcare landscape continues to evolve, a holistic approach that addresses both the medical and non-medical needs of individuals with complex neurological conditions is essential for delivering comprehensive and patient-centered care. By acknowledging the value of patient education and support, healthcare professionals can further enrich the multidisciplinary model, ultimately advancing the standards of neurosurgical care coordination.

Conflict of interest. Not declared

Financing. There was no funding.

Authors' contributions. Conceptualization, E.A. and A.M.; methodology, E.A..; software, R.O.; validation, R.O.; formal analysis, E.A..; investigation, Y.D.; resources, A.Zh.; data curation, R.O.; writing—original draft preparation, E.A.; writing—review and editing –E.A., A.M.

All authors have read and agreed to the published version of the manuscript.

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Хиазмалық-селлярлық аймақ ісігі бар науқастарға көпсалалы тәсіл негізінде нейрохирургиялық көмекті ұйымдастыру

Аяганов Е.С. [1], Нурбакыт А.К. [2], Аханов Г.Ж. [3], Дюсембекова Е.К. [4], Жанисбаев А.К. [5], Омирзак Р.М. [6]

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Түйіндеме

Түрік ершігі аймағында патологиялық процестердің алуан түрлілігі байқалады, олардың басым көпшілігі шығу тегі әртүрлі ісіктері (90% дейін). Диагнозды морфологиялық нақты тексеру үшін гипофиздың алдыңғы және артқы бөлік ісіктері бар және қалыпты аденогипофиздың және нейрогипофиздың дифференциалды диагностикасының кезеңдерін қамтитын диагностикалық алгоритмді қолдану ұсынылады.

Емдеу әдісін таңдау арқылы ісіктің мөлшері мен дәрежесі, оның жұмысы (гормондардың бөлінуі), науқастың жалпы денсаулығы мен қалауы, асқынулардың немесе қатар жүретін аурулардың болуы сияқты бірнеше факторларға байланысты. Көру өрісінің ақауларын тудыратын ірі зақымдануы бар науқастарды емдеудің бірінші таңдауы ретінде хирургиялық қызмет жиі ұсынылады. Дәрі-дәрмек немесе хирургия практикалық емес немесе тиімсіз болған жағдайларда пациенттер сәулелік терапияны немесе емдеу әдістерінің комбинациясын қабылдауы мүмкін. Хиазмальды селлярлы аймағының ісіктері бар науқастар үшін үнемі бақылауды қажет етеді, өйткені бұл ісіктер ұзақ мерзімді дәрі-дәрмекпен емдеуді қажет етуі мүмкін. Хиазмальды селлярлы аймағының қайталанатын немесе емделмейтін ісіктері кезінде емдеу нұсқалары қиын болуы мүмкін. Сондықтан ересек тұрғындарда ісіктері бар адамдарға оңтайлы медициналық көмек көрсету үшін дәл диагноз қою, емдеудің жеке жоспары және медицина қызметкерлерінің тығыз ынтымақтастығы қажет.

Нейрохирургияда көпсалалы тәсіл неврологиялық жағдайлардың күрделілігін жою үшін өте маңызды. Бұл бірлескен модельге нейрохирургтар, невропатологтар, нейрорадиологтар, онкологтар және оңалту мамандары сияқты мамандар тобы қатысады.

Түйін сөздер: нейрохирургия, нейрохирургиялық процедуралар, хиазмальді селлярлы аймақ.

Мультидисциплинарный подход к организации нейрохирургической помощи пациентам с опухолями хиазмально-селлярной области

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https://doi.org/10.70439/1813-3908.2025.78.2.011

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Резюме

В области турецкого седла наблюдается большое разнообразие патологических процессов, подавляющее большинство из которых представляют собой опухоли различного происхождения (до 90%). Для четкой морфологической верификации диагноза предлагается использовать диагностический алгоритм, включающий этапы дифференциальной диагностики нормального аденогипофиза и нейрогипофиза с опухолями передней и задней долей гипофиза.

Выбор метода лечения зависит от нескольких факторов, таких как размер и распространенность опухоли, ее гормональной активности, общее состояние здоровья и предпочтения пациента, наличие осложнений или сопутствующих заболеваний. Хирургическое вмешательство часто рекомендуется в качестве первого выбора лечения пациентам с большими поражениями, вызывающими дефекты полей зрения. В случаях, когда медикаментозное лечение или хирургическое вмешательство непрактично или неэффективно, пациенты могут получать лучевую терапию или комбинацию методов лечения. Пациентам с опухолями хиазмально-селлярной области необходим регулярный мониторинг и последующее наблюдение, поскольку эти опухоли могут потребовать длительного медикаментозного лечения. В случаях рецидивирующих или трудноизлечимых опухолей хиазмально-селлярной области выбор методов лечения может быть затруднен. Поэтому для обеспечения оптимальной медицинской помощи людям с опухолями среди взрослого населения необходимы точный диагноз, индивидуальный план лечения и тесное сотрудничество медицинских работников.

В нейрохирургии мультидисциплинарный подход имеет решающее значение для решения сложных неврологических проблем. Эта модель сотрудничества предполагает участие команды специалистов, таких как нейрохирурги, неврологи, нейрорадиологи, онкологи и эксперты по реабилитации.

Ключевые слова: нейрохирургия, нейрохирургические процедуры, хиазмально-селлярная область.