OPTIMIZATION OF THYROID CANCER PATIENT MANAGEMENT TACTICS BASED ON PERSONALIZED TREATMENT APPROACHES

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Relevance. Thyroid cancer patient management has undergone significant changes in recent years, driven by advances in understanding tumor biology, the development of molecular genetic technologies, and the introduction of personalized medicine. Although most forms of thyroid cancer have a relatively favorable prognosis, the clinical course of the disease is significantly heterogeneous, ranging from slowly progressing, well-differentiated tumors to aggressive, radioiodine-resistant forms with a high risk of recurrence and metastasis. Therefore, choosing the optimal patient management strategy is particularly important [1,5].

Traditionally, treatment strategies for thyroid cancer have been based on standardized algorithms, including surgery, subsequent radioiodine therapy , and suppressive hormonal therapy. However, this universal approach does not always take into account the individual characteristics of the tumor and the patient, which can lead to overtreatment in patients with a low risk of progression or, conversely, to insufficient therapy in patients with an aggressive disease course. Modern patient management concepts focus on a differentiated and risk-adapted approach[2].

A key step in optimizing patient management is accurate risk stratification based on a comprehensive assessment of clinical, morphological, and molecular genetic factors. Clinical parameters such as patient age, tumor size, the presence of

regional and distant metastases, the degree of invasion, and comorbidities play a significant role in determining an individual's prognosis. Morphological characteristics of the tumor, including histological type, degree of differentiation, the presence of vascular and capsular invasion, and proliferative activity indicators, allow for a more accurate assessment of tumor aggressiveness.

In recent years, the introduction of molecular genetic markers that reflect key mechanisms of thyroid carcinogenesis has become particularly important. The detection of mutations in the BRAF, RAS, RET/PTC, and other genes is associated with different tumor biological behavior and prognosis. The use of these markers not only allows for a more precise diagnosis in questionable cases but also determines the appropriateness of targeted therapy, an important element of a personalized approach [3].

Optimizing surgical tactics is a key aspect of managing patients with thyroid cancer. Depending on the individual risk of disease progression, either organ-preserving interventions or extended surgeries with lymph node dissection may be appropriate . A personalized approach to surgical treatment can reduce the incidence of postoperative complications, including recurrent laryngeal nerve injury and hypoparathyroidism , without compromising oncological radicality.

An equally important component is the individualization of adjuvant therapy , particularly the use of radioactive iodine. Current guidelines increasingly focus on the selective use of radioiodine therapy based on the risk of recurrence, thereby avoiding unnecessary radiation exposure in low-risk patients while simultaneously intensifying therapy in patients with a poor prognosis. In this context, molecular genetic and morphological data play a key role in clinical decision-making[4].

For patients with advanced, recurrent, and radioiodine-resistant thyroid cancer, targeted therapy and immunotherapy are particularly important . These methods enable the targeting of specific molecular targets on tumor cells, which helps improve treatment effectiveness and disease control. However, the effectiveness of these approaches directly depends on proper patient selection, which again highlights the need for personalized treatment strategies[2].

A key aspect of improving treatment effectiveness is dynamic monitoring and adaptation of the treatment strategy at various stages of the disease. Monitoring thyroglobulin levels , imaging techniques, and assessing the patient's clinical status enable timely detection of signs of relapse or progression and adjustment of treatment strategies. Personalized monitoring facilitates early detection of complications and improves patient adherence to therapy.

Optimizing thyroid cancer patient management also requires a multidisciplinary approach involving endocrinologists, oncologists, surgeons, pathologists, and molecular diagnostic specialists. This teamwork ensures a comprehensive assessment of each clinical case and facilitates the most informed and effective decision-making[1].

The introduction of personalized approaches has resulted in improved treatment effectiveness, resulting in reduced relapse rates, increased relapse-free and overall survival, and improved patient quality of life. Individualized treatment strategies not only improve oncological outcomes but also minimize the negative consequences of treatment, which is especially important for young and working-age patients[1].

Conclusions. Thus, optimizing thyroid cancer patient management tactics based on a personalized approach is one of the most promising areas of modern oncoendocrinology . Integrating clinical, morphological, and molecular genetic data into clinical decision-making can improve treatment effectiveness, ensure rational use of treatment resources, and improve the long-term prognosis.

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