

Metastatic tumors are undoubtedly the most common tumors encountered in the central nervous system, with a constantly growing upward trend. The largest proportion of the mentioned metastases are squamous cell carcinomas of the lung (30-60%). According to the autopsies, as many as one in four patients with a malignant neoplasm diagnosis will have a metastasis in the CNS. Most often these tumors disseminate hematogenously and then localise in the cerebral hemispheres (80%). Lung cancers and melanomas are histologically predisposed to metastasize to two or more foci in the CNS.

Despite the evolving consensus and guidelines, the treatment of metastatic tumors continues to be dynamically improved. If possible, the therapy should be individually chosen and modified according to such factors as patient's age, histopathological type of the tumor, number of cerebral metastases or possible targeted therapy options. The overriding and essential matter remains the longest possible time of survival with the highest quality of life. Hypothetical post-surgical life quality is the subject of intensive debates between neurosurgeons, oncologists and radiotherapists. As I have shown above, the patient's KPS score on hospital admission is lower than that obtained 30 days after modern surgical treatment. This confirms an improvement in the life quality of operated patients. For all metastases the obtained results are statistically significant. When distinguishing between individual histopathological groups, the increase in the quality of life measured using the Karnofsky scale appears in all histopathological groups. Melanomas and lung adenocarcinomas showed the highest trend. Patients with these histopathological diagnoses should be considered for surgery more often, especially if neurological deficits exist.

Surgery, chemotherapy, whole brain radiotherapy and stereotactic radiosurgery continue to be the fundamental methods in CNS metastases therapy. The most important risk factor of local tumor recurrence is the incomplete resection. Such innovative methods as immunotherapy or even vaccine are being gradually implemented and seem to be a promising tool in further extending the survival time of patients with CNS metastases.

As the above study shows, the patient's survival after the surgical resection of cerebral metastasis is undoubtedly dependent on the primary tumor histopathological type, the patient's age and quality of life (measured using the Karnofsky scale) at the time of the treatment initiation. In the context of the division into individual histopathological types, the lowest values are obtained by patients with squamous cell lung cancer, while the highest - by 62 patients with kidney cancer. The prognosis is worse in older patients and those with lower KPS scores. Risking a surgery on patients with bad prognosis is unjustified. When qualifying patients for surgery, the risk of early death after surgery should also be considered. In the above study I proved that the risk of early death after the metastatic tumor resection (up to 90 days after the procedure) is highest in patients with squamous cell lung carcinoma. Patients with this diagnosis should be more rigorously evaluated while qualifying for surgery. This result proves their least benefit from the surgical treatment.

Summing up, the qualification for optimal therapy of patients with brain metastases is an area of very dynamic development. These changes are twice as fast and dynamic, correlated with the development of radiosurgery and classical surgery. The studies should be continuously updated and the databases constantly expanded. A large yet not fully researched branch expected to improve the knowledge of patient's qualification for personalized treatment is the genomic profiling of specific tumors.