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SURGERY OF BRAIN METASTASES: NEW CHALLENGES AT THE ERA OF MOLECULAR BIOLOGY

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The brain can be a sanctuary for metastatic cancer disease as many anti-cancer drugs are unable to cross an intact blood-brain barrier allowing tumors to grow even when extracranial disease is effectively treated with chemotherapy or targeted therapies. Surgery plays an indispensable role in the treatment of brain metastases (BM), and the benefit of surgery has been documented in numerous studies. However, standard surgical treatment of cerebral metastases is often insufficient in achieving local tumor control, becoming obvious in the high local recurrence rate of surgically resected cerebral metastases without subsequent radiation therapy, which was estimated to be about 50% in some studies warranting an adjuvant treatment of the surgical cavity. Recently, two randomized clinical trials provided convincing evidence that adjuvant stereotactic radiosurgery (SRS) in patients with limited number of BM was associated with an increased local control. However, the still relative high rate of local recurrence, especially in large BM questioned the technique of irradiation and the actual need to better assess the quality of surgical resection. Indeed, one of the challenges of postoperative SRS is the target delineation. Another issue is our capability to accurately assess the extent of resection. We will discuss here, the potential interest of different SRS strategies as well as new surgical techniques such as fluorescence-guided resection in these patients. Also, surgical resection of brain metastases is more often included in a global diagnostic strategy aims to identify specific molecular profiles that could help defining a more tailored systemic treatment. Evaluation of available and future surgical approaches is thus of great importance. The goal of this work is to reappraise new approaches and strategies in the surgery of cerebral metastases at the molecular biology era.

Biography

Metellus Philippe is a Professor of Neurosurgery at the Clairval Hospital Center in Marseille, France. He is specialized in brain tumors and is the actual Leader of the glioma and the brain metastases program in France. Besides his clinical activity, he is running translational and basic science research program in the INSERM UMR 911 unit. His clinical and research activities are focused on Gliomas and Brain Metastases. A surgical research program on gliomas located in eloquent areas including awake craniotomies with electroencephalographic recordings has been developed with his neurological team in 2011. Also, a translational research program on gliomas and brain metastases biology is conducted with the Oncological Transfer Laboratory at the Aix-Marseille University. These programs involve a multi-disciplinary brain tumor consortium including Neurologists, Neuro-Oncologists, Medical-Oncologists, Radiation-Oncologists, Neuro-Radiologists, Pathologists and the translational oncology university platform. Since 2011, he organizes the Annual Brain Metastases Research and Emerging Therapies Conference in Marseille.

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