CONTINUING EDUCATION PROGRAM: EDITORIAL

Progress in neuro-oncology: Imaging in-phase!

Recent years have been marked by major biological and clinical advances in neuro-oncology. The understanding of the biological mechanisms involved in the oncogenesis of brain tumors has become an essential step for the development of new therapeutic strategies. These recent advances have led to the development of new treatments including targeted therapies. For example, although they often have a grave prognosis, some trials have shown that early chemotherapy, just before or after radiotherapy, very significantly extends the overall survival of patients with malignant oligodendrogial tumors presenting a co-deletion of chromosomal arms 1p and 19q. Neuro-oncology has therefore entered the era of personalized medicine in which routine therapeutic decisions are individually tailored for each patient according to the molecular profile of the tumor and the initial response to treatment.

The clinical (taking into account cognition and quality of life) and radiological evaluation of patients has improved with parallel progress in surgical treatments (intraoperative wake-up, cortical/subcortical stimulation, use of hypnosis), radiotherapy (development of stereotactic radiotherapy) and chemotherapy (the use of new drugs and methods of administration). Today, multidisciplinary clinical, radiological and molecular expertise allows a more informed choice to guide treatment evaluation.

In neuro-oncology, imaging plays a crucial role both in the diagnostic phase and for therapeutic monitoring. It is all the more powerful when leading edge techniques (diffusion, perfusion, spectroscopy) are combined with the conventional morphological approach. These are now readily available on current imaging systems with automated mapping, and are familiar to all radiologists, with their advantages and limitations. They form the core subject of the articles in this monograph.

The aim of this issue is therefore to assist radiologists at each stage of patient management from the initial diagnostic approach to tumors and differentiation of pseudotumors to therapeutic monitoring with the diagnostic pitfalls associated with treatment-induced changes in the blood brain barrier. It is intended to assist the use of tools offered by current multimodal radiology in the fast-changing field of neuro-oncology.

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