A nanomedecine perspective for the management of patients with glioblastomas ?

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Therapeutical standards in glioblastoma associate surgery, radiotherapy and chemotherapy. A few progresses have been observed during the last 30 years, and the standard regimen associating radiotherapy and temozolomide did not modified at all the incurable perspective of glioblastoma. On main problem is also the persisting difficulties related to the anatomopathological annotation of this tumour, with more than 40% of non-reproducibility of the neuropathological type. Several avenues will be illustrating to solve this issue, as well as the discussion of new modalities in clinical trials, mainly provided by the development and validation of several micro-nano technologies. Molecular and cellular data have been extensively produced from the last 10 years, supporting a complex molecular and cellular panorama of this disease from DNA to protein dysfunction. Recently microRNA studies opened new alternatives, which could unify a more global perspective in the molecular annotation in neuro-oncology. However, the global conclusion is that beside the global conception of glioblastoma, a unique disease is declined which justify the development of innovative technology to perform a personal molecular annotation. Testing the relevant and intricated molecular pathways, which are potential efficient therapeutical target, is a research priority. The development of micro-nanotechnology supports a new medical modality for the annotation, prediction, monitoring of glioblastoma in a personalized way. Beside molecular technology, the development of new technologies for local therapy renewing the potential of convective infusion is also a major perspective with interesting and synergistic association with molecular therapy, radio-chemotherapy and neurosurgery.
To push these preclinical progresses at the bedside; we probably have to implement a new methodology for innovative clinical trial in oncology supported by the last micro-nanotechnological progress implemented in an ethical way.