Potential of 5-ALA in Neurosurgery – Fluorescence and Photodynamic Therapy

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Neurosurgery suffered from discrimination of tumor to normal tissue during surgical tissue resection, but also for selective treatment of GBM. The application of photoactive drugs and their use for fluorescence guided resection, optical guided biopsy and photodynamic therapy in neurosurgery could support such requests. Besides the medical needs and boundary conditions, the physics and technical research and developments will be presented. Different clinical aspects of photodynamic therapy (PDT), like treatment planning, treatment and dosimetry protocols, spectral on-line-monitoring (SOM) as well as follow-up evaluation of clinical outcome, are of interest regarding further iPDT developments. Preliminary study results as well as the potential of optical dosimetry concepts based on light-tissue interaction and light-photosensitizer interaction are included summarizing the latest developments in this field.

Keywords: Intraluminal, Interstitial photodynamic therapy, iPDT, online monitoring, medical imaging, brain tumor.

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