New developments in Photodynamic Diagnosis and Therapy

Herbert Stepp

Laser-Forschungslabor, LIFE center, University Clinic Munich, Marchioninistr. 23, Munich, Germany, Herbert.stepp@med.uni-muenchen.de

From March 2009 to April 2010, the number of clinical studies on “photodynamic”, listed in “clinicaltrials.gov” increased from 158 to 206. Photodynamics is thus gaining more and more clinical acceptance. The broadest fields are the treatment of choroidal neovascularization (AMD), today in combination with antiangiogenic drugs and skin lesions. However, 23 more areas of application are addressed by PDT, including non-oncological conditions like acne, bacterial infections, benign prostate hyperplasia and even hair removal. 22 different types of photosensitizer had been listed in 2009. Diagnostic applications of photodynamics are not representatively covered by this search term, as evident when scanning for “aminolevulinic”, where e.g. the studies dealing with fluorescence guided resection of malignant glioma only then appear in the listing. An update on this search will be given in the conference.

Clinical PDT in most cases is still performed according to simple protocols, prescribing drug and light dose parameters without considering patient specific characteristics of drug accumulation and optical tissue parameters. Many groups are eagerly exploring possibilities to individualize treatment regimes in order to obtain more favourable and stable clinical outcomes. With the same aim, much preclinical work is performed to improve the efficacy of PDT related treatment effects, among which the role of the immune system appears to play a major role. A subjective selection of recent research on these topics, which appears most promising will be presented.