

Principles of Laser Application in Medicine

Type of article: Conference abstract

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Abstract

Laser are used today more and more in therapy and diagnostics. In diagnostics they are used additional to other procedures like metabolic monitoring (fluorescence diagnostic) resp. for optical imaging (Infrared-diaphanoscopy).

Main topic of medical applications therapy, in which Laser is sometime a surgical instrument sometime a central, alone standing therapeutic procedure.

But it is forgotten that Laser is light, a special light, but the biological reactions are in general not different from normal light. This is important to prevent disappointments on the other to use the experience of photobiology and light therapy. In medicine Laser is used since his invention 40 years ago mostly destructive but nature uses light since billion of years mainly constructive! So Lasers are used not only for cutting and removal on surfaces the application is more complex. This is caused by a continuous technical development of Laser-systems and accessories, like endoscops, but more important is the better knowledge about Laser-tissue-interaction.

The field of application is broad, there are daily new indications but other are replaced by the development of other techniques like Radiofrequency.

The indications are from plastic surgery over the congenital and vascular diseases to open surgical organ and tumor resections. Very important is Laser in endoscopic surgery and in interstitial Lasercoagulation. But in contrast to thermal procedures the indication for Photo dynamic Therapy are dysplasias and virus-induced tumors.

The experiences by the Photodynamic Therapy and the better understanding of biochemical metabolic processes open the field of indications for this therapeutic principle also for benign chronic diseases.

Key words: Diagnostic, Surgery, Laser, Medicine.

1. Conflict of intereststatement

This article is a keynote presented at the International Congress on Health Sciences and Medical Technologies 2018 ICHSMT'18.

2. Authors' biography

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After graduating from the faculty of medicine at the FreieUniversität Berlin in 1976 Prof. Berlien started his surgical education and received his doctorate specializing in paediatric surgery in 1981.

In1985 he became medical director of the Centre for Laser and Medical Technology Berlin (LMTB). In 1989 he became professor for laser medicine at

the FreieUniversität Berlin. In 1996 he has been head of department for laser medicine at the KlinikumNeukölln and Elisabeth Klinik Berlin. 2014 he handed over the position as the head of the department to his Vice Director Dr. Carsten Philipp and continues his work as Director for Science and Research in Laser Medicine within the Department.

Since this time he works in science and development. He is member of several international committees and serves even as convener in International Standardization Organization

3. References

No references