

Laser Stimulation of Peripheral Nerves

Serhat Tozburun

Izmir Biomedicine and Genome Center, 35340 Izmir

Izmir International Biomedicine and Genome Center, Dokuz Eylül University, 35340 Izmir

There are several advantages that the laser nerve stimulation technique offers compared to the traditional electrical nerve stimulation technique: (1) Non-invasive nerve stimulation method; (2) Improved spatial selectivity. (3) Artifacts-free measurements. Therefore, the advantages of LNS may offer new approaches where the conventional method can eliminate or limit some of the side effects. However, LSM continues to raise many questions that need to be answered, including new technological developments.

Laser stimulation of peripheral nerves is a promising method because the laser beam can provide a non-contact mode with improved spatial selectivity [1] for non-electrically stimulating nerves. This scope may be necessary for some clinical applications, especially in preclinical scientific studies. For this reason, studies on the determination and comparison of stimulation parameters are actively carried out [2]. Diversifying laser nerve stimulation for various nerve bundles in the peripheral nervous system is invaluable to exploit the method. More interestingly, these benefits may indicate the

potential of the laser-based technique to counter the side effects of conventional stimulation methods.

In the talk, laser stimulation of the cavernous nerve extending over the prostate and the problems that need to be addressed to reach a technology that will go into nerve mapping are discussed [3]. Studies of laser stimulation of another essential nerve (i.e., the vagus nerve) are also discussed [4]. The results are analyzed for challenges that need to be resolved before the LNS technique becomes a treatment option for patients with drug-resistant epilepsy. The talk discusses the results from the rat model.

References

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