

PT-P008

Electrosurgery Sparks induced Stimulating Current at Active Electrode

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Electrosurgery has been widely used in surgical procedures for many years. The surgical procedure using radiofrequency power generated occasionally sparks causing electrical stimulations. According to a paper of commercialized APC (Argon Plasma Coagulation) in the gastrointestinal endoscopy, Patients treated by APC had experienced pain and neuromuscular stimulation.

This study aimed to investigate the electrosurgery sparks. In this experiment, current threshold of electrosurgery using rf was investigated. Sparks analogous to surgical situation was generated and measured the I-V figure. Asymmetric current, observed by other researchers, was also measured. This could be explained by difference between positive phase and negative phase. Furthermore, a method was developed to remove asymmetric current and to make safer device for surgical field.

Keywords: Electrosurgery, Plasma, Stimulation