On the Relation between Bacterial Load and Clinical Parameters in Chronic Wounds

The application of low-temperature atmospheric Argon plasma offers a new therapeutic option for treatment of chronic skin wounds. We consider a group of patients who received standard wound care besides a 5 minutes Argon plasma treatment. For statistical reasons, skin wounds are divided into two regions, randomly assigned to treatment and control areas. Nitrocellulose filters were used to monitor changes in bacterial load. The evolution of wounds during plasma therapy is documented using digital imaging at each treatment. We develop and apply image processing techniques for the assessment of bacterial load and for a comprehensive characterization of the wound healing process that allows for quantitative statements. Using these techniques, we follow up changes in the bacterial load and investigate the relationship between this quantity and other clinical parameters.