

Adtec SteriPlas use on Chronic Burn Wound

Non-thermal atmospheric gas plasma has already been shown to decrease the bacterial load in chronic wound dermatological applications. In this study, standard care is compared with standard care plus cold atmospheric argon plasma treatment for the treatment of a non-healing burn wound with exposed tibial bone on the left shin with the aim of increasing the rate of healing of the wound and reducing bacterial colonisation.

Study Outline

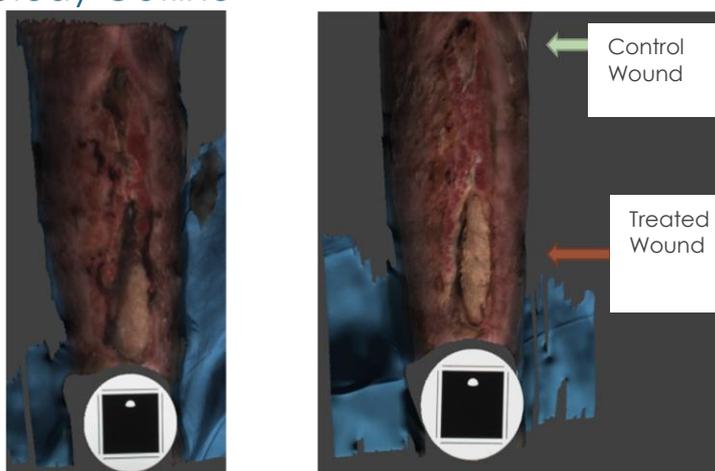


Figure 3: Left shin wound on day 1 (left) and day 15 (right)

The patient had two sites on this left shin wound (separated by a bridge of granulation tissue,) which were selected for the study. The smaller proximal wound (4.37cm²) was used as the control, while the larger wound (15.32cm²) was selected to receive cold plasma treatment.

Both wound sites received the same standard care which included silver dressings. The distal wound received cold atmospheric argon plasma treatment for 2 minutes every 3-4 days for 16 days and wound swabs were taken from both sites before every treatment. The timing of the treatments were timed to occur at the same day of the routine dressing changes. Three dimensional pictures of the wounds were taken before each treatment session with a stereo 3-D camera (Eykona, Fuel 3D, UK).

Results

The distal wound received a total of 5 treatments. Both the control and treatment wounds showed a significant decrease in surface area at day 16 (2.77cm² for control, 8.07cm² for treated wound, $p < 0.01$, Figure 1). However, the cold atmospheric argon plasma treated wound showed a greater reduction in absolute wound size (-7.24cm² versus -1.59cm², $p < 0.01$, Figure 2) and percentage of original wound (-47.3% versus -36.5%, $p = 0.005$).

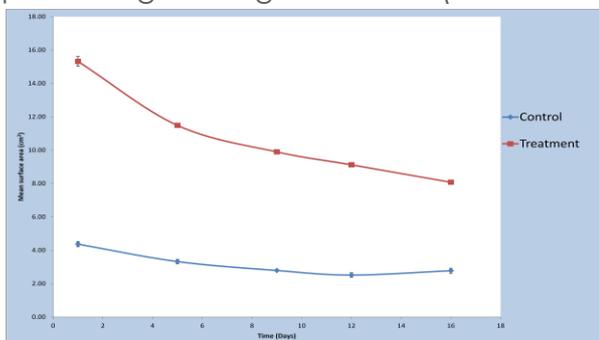


Figure 1: Total mean surface area of control and cold atmospheric plasma treated wounds over 16 days

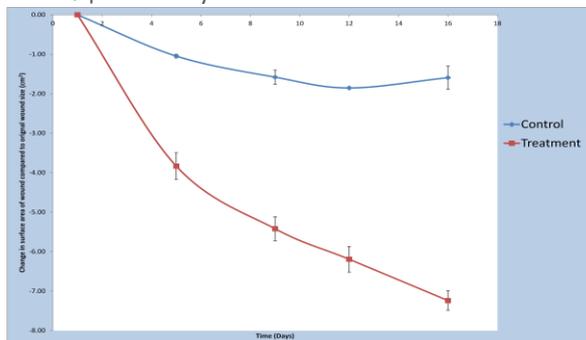


Figure 2: Mean surface area over original wound size of control and cold atmospheric plasma treated wounds over 16 days

Full Study Details can be obtained from the following paper: **Wounds UK 2015 Poster - Use of cold atmospheric plasma treatment in a chronic burn wound**, Kwang Chear Lee¹, Naiem Moiemem² 1 PhD student, University of Birmingham; 2 Burns and Plastics Consultant, Queen Elizabeth Hospital, Birmingham