The Importance Of Cold Plasma In Wound Healing And Wound Infections: What Is Cold Plasma And How Does It Work

Max Zegelman
DIRECTOR VASCULAR AND THORACIC SURGERY
Krankenhaus Nordwest
and ADZ- Bürgerhospital Frankfurt/Main
Germany

New York, 2018

DISCLOSURES
Maquet/Getinge Group:
Travel support
Material supply (prostheses, testing)
Payed speaker on other events

What is Plasma?
- The 4th state of matter and is a charged gas.

Plasmatherapy
Not available in the U.S.

Efficacy against gram-positive bacteria
- Staphylococcus aureus
  - 60 s
  - 120 s

Efficacy against gram-negative bacteria
- Pseudomonas aeruginosa
  - 60 s
  - 120 s

Adtec - Argon

Thank you Dr. Veith for inviting us again.
Staph. aureus

T. E., female 90 years

Reduction of wound area:

-17.8% Group 1
32.0% Group 2
46.8% Group 3

EWMA 2018; Deutscher Wundkongress Bremen 2018

Rotering H. Münster

Cold atmospheric plasma

CAP-Treatment of infected LVAD-systems

<table>
<thead>
<tr>
<th>Patient</th>
<th>Sex</th>
<th>Age</th>
<th>Localization</th>
<th>Etiology</th>
<th>Treatment weeks</th>
<th>Result</th>
</tr>
</thead>
<tbody>
<tr>
<td>H-T 66</td>
<td>M</td>
<td>66</td>
<td>Staph. aureus</td>
<td>Infection</td>
<td>2</td>
<td>Complete healing</td>
</tr>
<tr>
<td>E-K 67</td>
<td>F</td>
<td>67</td>
<td>Staph. aureus</td>
<td>Infection</td>
<td>2</td>
<td>Incomplete healing</td>
</tr>
<tr>
<td>S-K 61</td>
<td>M</td>
<td>61</td>
<td>Enterococcus</td>
<td>Infection</td>
<td>2</td>
<td>Complete healing</td>
</tr>
<tr>
<td>L-F 65</td>
<td>F</td>
<td>65</td>
<td>Enterococcus</td>
<td>Infection</td>
<td>2</td>
<td>Complete healing</td>
</tr>
<tr>
<td>M-M 64</td>
<td>M</td>
<td>64</td>
<td>Enterococcus</td>
<td>Infection</td>
<td>2</td>
<td>Complete healing</td>
</tr>
</tbody>
</table>

Rotering H., Münster

32nd EACTS Annual Meeting Milan, Italy
15-20 October 2018

CAP treatment in the OR
No alteration of mechanical stability (ISO 7198:2015)
- Coated and uncoated polyester prostheses (Maquet/Getinge)
- Dry and wet 2 x 5 or 2 x 10 min

zegelman.max@khnw.de

No alteration of mechanical stability (ISO 7198:2015)
- Coated and uncoated polyester prostheses (Maquet/Getinge)
- Dry and wet 2 x 5 or 2 x 10 min

zegelman.max@khnw.de

- Contamination of the surface for 5 seconds (MRSA/Pseudomonas from two ulcers)
- Coated and uncoated polyester prostheses (Maquet/Getinge)
- Wet

zegelman.max@khnw.de

- 5 or 10 min application of cold plasma

zegelman.max@khnw.de

Plasma One - Air

First use worldwide to treat graft infection (support of NPWT)

The Importance Of Cold Plasma In Wound Healing And Wound Infections: What Is Cold Plasma And How Does It Work

Max Zegelman
DIRECTOR VASCULAR AND THORACIC SURGERY
Krankenhaus Nordwest
and
ADZ- Bürgerhospital Frankfurt/Main
Germany
New York, 2018