



In search for the most effective therapeutic schemes in clinical plasma medicine

Hans-Robert Metelmann^{1,3}, Christian Seebauer^{1,3}, Philine Doberschuetz^{2,3}

¹Department Oral and Maxillofacial Surgery, University Medicine Greifswald, Greifswald, Germany

²Department Orthodontics, University Medicine Greifswald, Greifswald, Germany

³National Center for Plasma Medicine (NZPM), Berlin, Germany

E-mail: metelman@uni-greifswald.de

Introduction

The general effectiveness of cold physical plasma in the treatment of infected skin or mucosa, chronic wounds, surgical site infections and cancer ulcerations has been proven in several clinical pilot studies.^[1, 2, 3, 4, 5] The next step on the way to evidence based medicine has to be defining the most effective dose, pattern of application, treatment scheme and not at least when to end the plasma therapy because of lasting success or failure and need for other treatment options.

Aims

This kind of research cannot be based upon in-vitro or animal studies. The dose depending clinical effectiveness has to be investigated in clinical studies. In this protocol we are interested in the influence of a different duration of plasma application in a standardized treatment pattern.

Methods

Patients with large ulcerations caused by advanced cancer by treated in an individual comparison model, applying 3 times a week and for 2 weeks cold physical plasma (kINPen® MED) at 3 different areas of the same ulceration for 1, 2 or 3 minutes/cm². The effect of this treatment was assessed 2 weeks after the end of the last plasma application.

Results

Firstly there is a clear local effect of reduction of microbial pathogens with the best results caused by 3 minutes of plasma application. Secondly there is an anti-tumor effect concerning the entire surface of the ulceration at best by this dose as well.

Discussion

The topical antibacterial effect calls for a local mechanism of plasma activity. The widespread anti-tumor impact is suggesting an immunoreaction caused by plasma. The study is supporting a tendency statement, that longer lasting application of plasma means better treatment results. The next step in the research program will be focused upon the most favorable pattern of application.

References

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