Rhee et al. Head & Neck Oncology 2010, 2(Suppl 1):O28
http://www.headandneckoncology.org/content/2/S1/O28

Head & Neck Oncology

ORAL PRESENTATION Open Access

The effect of PDT on H. influenzae biofilm in vivo

Chung-Ku Rhee*, So-Young Chang, Phil-Sang Chung, Jae-Yun Jung, Jin-chul Ahn, Myung-Whan Suh

From 2nd Scientific Meeting of the Head and Neck Optical Diagnostics Society
San Francisco, CA, USA. 23-24 January 2010

Introduction

Biofilm formation has been demonstrated for many mucosal pathogens such as Haemophilus influenzae. The presence of mucosal biofilms with chronic otitis media with effusion (COME) suggests that bacteria do not clear by antibiotics.

Aim

To test the effect of photodynamic therapy (PDT) on H. influenzae induced biofilm in vivo.

Methods

Sixteen bullae of 8 gerbils were injected with 200μl (107CFU/ml) of H. influenza and formation of biofilms in the bullae was obtained by 5 days. The bullae were divided into control, laser, photofrin, and PDT groups. The control group received no treatment. For laser group, 120 J/cm2 (100 mw x 20 min) of 632 nm LD laser was irradiated into the bullae by a fiber inserted directly into the bullae. For photofrin group, photofrin 40μl (1mg/ml) were injected into the bullae. For PDT group, photofrin same as in photofrin group was injected into the bullae and LD laser was irradiated into the bullae same way as in laser group. The mucosal tissues in bullae were examined by H/E staining, and SEM.

Results

The control, laser, and photofrin groups have shown well formed biofilm. Two third of the PDT group bullae have shown well resolved biofilm while 1/3 of the bullae have shown incompletely resolved biofilms.

Conclusion

The results of this study demonstrated that PDT appears to be effective to treat experimental H. influenzae induced biofilms in vivo. Further trial in different dose combinations of photosensitizer and laser needs to be tried for better results in PDT group.

Clinical implication

PDT may be an alternative to antiobiotic treatment on otitis media with biofilm formation.

Published: 29 October 2010

doi:10.1186/1758-3284-2-S1-O28
Cite this article as: Rhee *et al.*: The effect of PDT on H. influenzae biofilm in vivo. *Head & Neck Oncology* 2010 **2**(Suppl 1):O28.

Dankook University Hospital, Republic of Korea