HOT TOPIC

Rhinophototherapy: a new tool for the treatment of allergic rhinitis?

The aim of this study was to assess the effectiveness of rhinophototherapy in the treatment of allergic rhinitis.

Methods
This study was performed in Szeged (Hungary), during ragweed season, on 49 patients with a history of ≥2 years of moderate-to-severe seasonal rhinitis. In a double-blind fashion, each eligible patient was randomised to receive either ultraviolet (mUV)/visible light (VIS) irradiation or low-intensity VIS (1-VIS). Each intranasal cavity was irradiated three times per week for 3 weeks with increasing doses of mUV/VIS or 1-VIS. Cetirizine was the only treatment permitted during the study.

Symptom scores, and inflammatory cells and their mediators in nasal lavage were assessed. In vitro, the effect on eosinophil, T-cell and rat basophil leukaemia cell line RBL-2H3 apoptosis was assessed. The effect on histamine release was also investigated in vitro on RBL-2H3 cells.

Results
A total of 25 patients received intranasal phototherapy with mUV/VIS and 24 patients with 1-VIS. The two groups were similar in age, disease duration and clinical scores at the beginning of the treatment protocol. The therapy was well tolerated; the only side-effect was slight dryness of the nasal mucosa.

Total nasal score significantly decreased after mUV/VIS (p=0.004) and slightly increased after 1-VIS treatment (p>0.05). Sneezing, rhinorrhea and nasal itching scores significantly improved in the mUV/VIS group (p<0.016, p<0.007, p<0.014, respectively). Nasal obstruction improved during phototherapy in both treatment groups, but this improvement was only significant in the control group (p=0.017). Eosinophil cells, eosinophil cationic protein and interleukin were significantly reduced in the nasal lavage of the mUV/VIS group. The dropout rate was 18% in both groups.

In vitro, mUV/VIS irradiation induced a dose-dependent increase in eosinophil and T-cell apoptosis. No effect on apoptosis was observed with 1-VIS irradiation. RBL-2H3 cells were resistant to mUV/VIS-induced apoptosis. Furthermore, mUV/VIS irradiation inhibited histamine release from RBL-2H3 cells.

Conclusion
Combined phototherapy (UV/VIS) in the nasal cavity can be an effective treatment of allergic rhinitis.

Message
Rhinophototherapy is effective in the treatment of allergic rhinitis

References

Editorial comment
Phototherapy has a profound immunosuppressive effect [1], and the combination of both UV and visible light is, therefore, widely used for various inflammatory skin diseases. This is one of the few double-blind, randomised trials that has studied the effect of phototherapy on mucosal allergic disease.

In a previous study, the same authors demonstrated the efficacy of phototherapy with a xenon chloride ultraviolet B laser in allergic rhinitis [2]. Furthermore, it has been demonstrated that perennial allergic rhinitis, if uncomplicated by polyps or chronic sinusitis, can be effectively treated by narrow-band red-light illumination of the nasal mucosa at 660 nm [3]. This well-conducted study demonstrates the efficacy of phototherapy in the treatment of allergic rhinitis and identifies the possible immunological mechanism involved in phototherapy in the allergic inflamed mucosa.

Nevertheless, the small size of the sample and the lack of information about cetirizine use among the two groups would advise the reader to be extremely careful when suggesting this modality for the treatment of allergic rhinitis. However, in patients who are not responsive to usual therapy or in which the use of traditional drugs for allergic rhinitis is controversial (such as pregnant and breastfeeding females), rhinophototherapy could be a treatment option.

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Original article