



Hyperreactivity of the nasal mucosa – Which drug, when and how?

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Hyperreactivity is a condition of supranormal secretory, vascular or other response to specific or non-specific stimuli. The term is usually used in combination with the organ or part of the body affected – e.g., bronchial hyperreactivity, or conjunctival hyperreactivity.

For some years, a simple standardized method has been available for estimating bronchial hyperreactivity from the effect of inhaled histamine or methacholine on airway resistance. However, although considerable effort has been devoted to finding a reliable means of assessing nasal hyperreactivity, no such test has found general acceptance. There is not the same physiological basis for using airway resistance as a measure of hyperreactivity in the nose as in the bronchi. The thickness of nasal mucosa with its sinusoid content is readily susceptible to changes in temperature or emotional fluctuations, for instance, which have a far greater effect on nasal airway resistance than, for example, intranasally applied histamine. Only when considered in conjunction with the amount of collected secretion and the number of sneezes, are changes in nasal airway resistance or nasal peak flow likely to provide a reliable indication of the degree of nasal reactivity.

The test of nasal reactivity hitherto most widely accepted would seem to be the methacholine test evolved by Borum, Copenhagen (1979). Methacholine challenge stimulates secretion in the nose, and smooth muscle contraction in the bronchi. Patients with vasomotor rhinitis produce more secretion than do healthy controls, and methacholine-induced secretion can be inhibited in such patients by treatment with topical steroids (Malm et al., 1981).

“Priming” is a specific form of hyperreactivity occurring in allergic patients following exposure to relevant allergens, either naturally or by challenge. Non-specific hyperreactivity is seen in cases of vasomotor rhinitis or nasal polyposis, for

example, or during infection. Specific hyperreactivity can be demonstrated by the fact that, at subsequent challenge, lower doses of allergen are required to evoke the same degree of symptoms. Specific hyperreactivity can also be demonstrated with histamine challenge, though histamine itself cannot render mucosa hyperreactive; nor apparently is it the histamine released at allergen challenge that is responsible for the hyperreactivity. It is open to speculation whether hyperreactivity constitutes increased availability of mediators from nerves and mast cells, enhanced permeability to mediators and fluid, or heightened sensitivity of the effector cells; and what substances are responsible for such increases remains to be elucidated. Thus, it is difficult to state with confidence which drugs are best suited for the treatment of nasal hyperreactivity.

Three cases were discussed:

1. A 21 year-old woman who for the past two years has been distressed – chiefly by attacks of sneezing and watery secretion – while working as an assistant in a perfume shop, but also by nasal obstruction – usually when in bed. For the past three years she has been on oral contraceptives, and for the past two years she has had a pet chinchilla at home.

Skin prick tests of 15 different allergens, including various animal extracts (but not chinchilla) were negative. A nasal smear contained abundant eosinophils, and a methacholine test showed increased nasal secretion.

Gerth van Wijk, an allergologist, stressed the importance of a very carefully taken history as a guide to which test(s) to use. In this case, for instance, he urged that a chinchilla test be done to eliminate the possibility of the hyperreactivity being due to an animal allergy. Hasegawa and Lundblad, both ENT specialists, agreed with Gerth van Wijk in this respect, though they differed as to medical treatment. Gerth van Wijk proposed treatment with topical corticosteroids, intranasally twice daily, which he would not hesitate to continue prescribing indefinitely if necessary. In Hasegawa's view, with fairly mild symptoms such as sneezing and watery secretion an antihistamine once a day would be sufficient, at least for a few days – the lower the sedative effect of the antihistamine the better. Lundblad mentioned the possible connection between nasal obstruction and oral contraceptives, and suggested cessation of oral contraceptives for a few months to see whether the nasal obstruction was relieved. In discussion with the audience, the question was raised of whether to give topical steroids for severe nasal obstruction during the last month(s) of pregnancy, and at least two of the panel members considered such treatment acceptable.

2. A 40-year-old office worker, with the mild nasal obstruction on the right side for a period of 22 years after a trauma; however, the last year with continuous bilateral nasal obstruction mainly in bed.

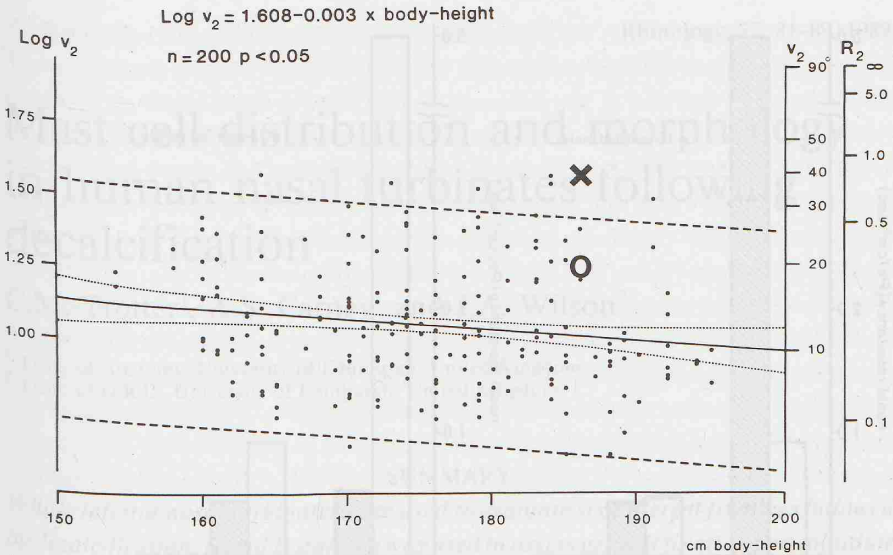


Figure 1. The nasal airway resistances from the right (X) and the left nasal cavity (O) of patient number 2 after decongestion of the mucosa with spray in relation to the resistances of 200 cavities of subjects with no nasal complaints with the mucosa decongested in the same way. The hatched lines represent the 95% prediction limits and a resistance above the upper hatched line is regarded as pathologically high.

Both the skin prick test and conjunctival challenge were positive vis-à-vis the domestic dust mite. Rhinomanometry after decongestion showed marked nasal airway resistance on the right side (Figure 1). No eosinophils were present in the nasal smear. Although total IgE was high, allergy tests were negative. All three panel members suggested septoplasty to reduce the nasal obstruction as much as possible (see Figure 2 by Hasegawa); and should that prove inadequate, the panel were agreed in recommending topical corticosteroids to be continued indefinitely if necessary, though it was suggested that they should be used for a few months at a time, with a break of a few weeks to check whether the symptoms reappeared. None of the panel recommended local decongestants (by spray or drops) owing to the risk of rhinitis medicamentosa, or systemic decongestants (alpha-adrenoceptor agonists) owing to such side effects as micturition problems. Gerth van Wijk felt that hyposensitisation vis-à-vis domestic dust mites was not to be recommended, as in his experience the effect was poor in patients of this age group. In addition to the use of corticosteroids, Gerth van Wijk also recommended instructing the patient in measures to reduce the quantity of dust mites in the home.

3. A 48-year-old female technician at a department of chemistry, with nasal obstruction - mainly when at work - for the preceding eighteen months. For the past

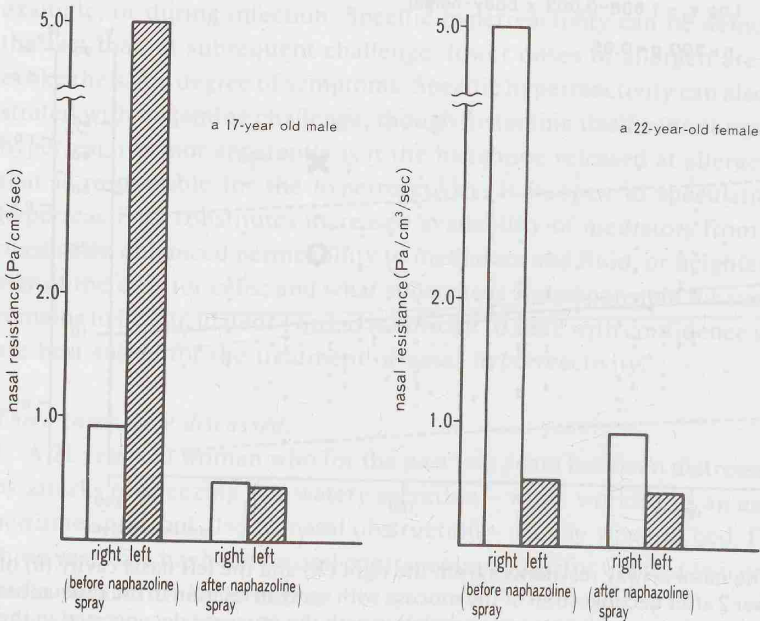


Figure 2. Naphazoline spray induces considerable decreases of nasal resistance in patients with allergic rhinitis. It demonstrates the difference of widening in the bilateral skeletal airways which are mainly caused by septal deviations. In the left figure, the increase of left nasal resistance is caused by mucosal swelling. On the contrary, septal deviation plays an important role in increasing the right nasal resistance in the right figure.

two years her work has primarily been in a photography laboratory, and as it is not possible for her to switch jobs for at least six months she urgently requested medication to help her through the intervening period. Lundblad was reluctant to prescribe any medication, but suggested strenuous efforts to find her an alternative place of work. Gerth van Wijk proposed prescribing topical corticosteroids in the meantime. Hasegawa preferred trying sodium cromoglycate (Intal®) intranasally, as in his opinion it sometimes has a beneficial effect on nasal hyperreactivity.

Neither the chairman nor the panel felt that systemic corticosteroids were to be recommended in any of the three cases discussed.

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