

Reproducibility of the Nasal Provocation Test and of Measuring Peak Expiratory Flow Rate Through the Nose

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In the past, nasal provocation tests (NPT) have been used in allergic patients mainly for the control and confirmation of already established laboratory or clinical diagnostic procedures. In my opinion, the greatest value of such a test is its usefulness for objective assessment of treatment of allergies, particularly in those who have undergone specific immunotherapy.

For this, two factors are of paramount importance. Firstly, there must be a constantly reproducible allergen as to allergenic activity. Secondly, there must be a satisfactorily reproducible technique for measuring the response in the nasal mucosa in each patient, simple enough for full patient cooperation but reliable enough to be of clinical and scientific value.

With regard to the allergen, a purified and well defined allergen preparation from timothy pollen is now available in a freeze-dried state and is of proven stability as regards allergen activity (1).

An accurate and objective assessment of nasal patency can be made with rhinomanometry, but this technique has the disadvantage that a proper cooperation can be obtained only in a proportion of the patients involved in trials since the procedure proves too difficult for many of them. A rough but constantly reliable method

of measuring the peak expiratory flow rate through the nose (PEFR_n) was first introduced in 1973 (4) and has been shown to give results closely consistent with those of rhinomanometry where the latter could be adequately performed (4,5) (Fig. 1).

Furthermore, for NPT to be reliable and reproducible it is essential that the quantity, and mode and site of application, of the allergen preparation is constant. This condition was fulfilled in trials over 3 years with timothy pollen immunotherapy comparing the purified preparation with crude extracts (2-4).

Using direct inspection, two drops of the extract were applied bilaterally by means of a syringe on the anterior part of the inferior turbinate, 1-2 cm posterior to the front of it. Reactions were recorded after 20 min by direct inspection and by repeated PEFR_n. The response was considered to be positive when the patient presented with sneezing, increased secretion and/or swelling of the nasal mucosa, and a reduction in nasal PEFR of 25% or more.

The trial included a control group of grass pollen allergic patients not undergoing any form of immunotherapy. In these patients the response following five applications of allergen preparations under identical

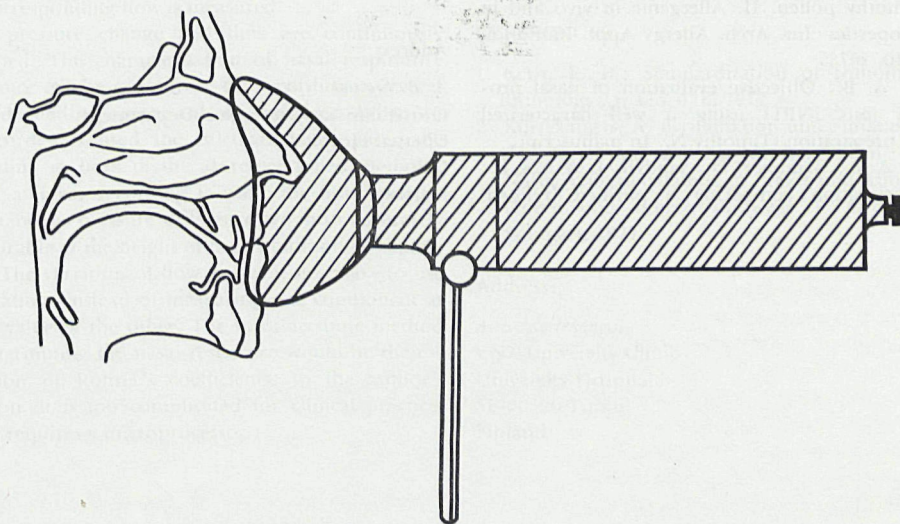


Fig. 1. Measuring peak expiratory flow rate through the nose (PEFR_n).

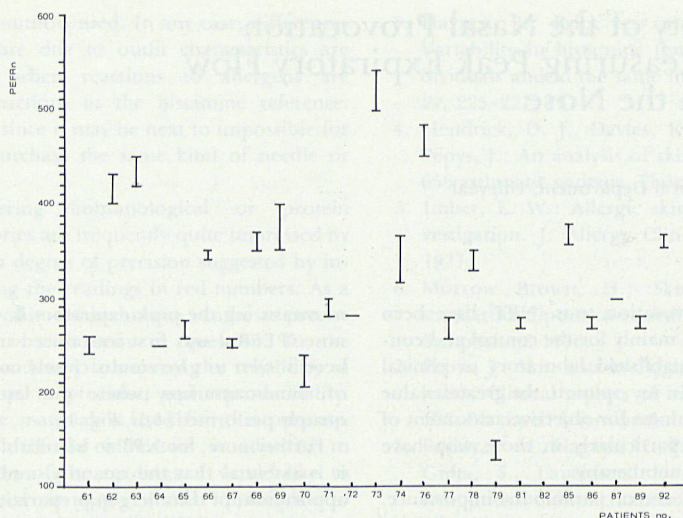


Figure 2. The reproducibility of $PEFr_n$ before challenge in 28 patients and the range of $PEFr_n$ during 5 measurements in the course of a three years' period, under identical conditions.

conditions in the course of the 3 years was almost the same as measured by $PEFr_n$ (Fig. 2) (2). The results obtained indicate that we have a reliable method for evaluation of the efficacy of immunotherapy on tolerance to allergen challenge of the nasal mucosa of timothy pollen allergic patients, particularly since an optimal allergen preparation and a reliable and practical way of measuring patient response are now available.

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