PATTERNS OF ALLERGY IN VASOMOTOR RHINITIS

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Hayfever

The most typical form of allergic rhinitis is hayfever. It is characterized by the following symptomatology:

1. Typical clinical picture (itching, hypersecretion, sneezing).
2. Occurrence in a certain season (mid-May to mid-August) as a consequence of the prevalence of grasspollen in the air during that period.
3. Positive atopic skin-reactions. The complaints of hayfever are caused by a reaction between the allergen present in the pollen granules and the cell-bound reagins. Presumably histamine and other substances are liberated enzymatically during this reaction and these are the cause of the complaints.
4. During the hayfever season patients have generally a considerable blood- and nasal mucus eosinophilia, which are absent during the rest of the year.
5. Very often we can find in the patient's history a constitutional dermatitis in early youth and some other cases of hayfever, asthma vasomotor rhinitis or constitutional dermatitis in the family.
6. As histamine may be the most essential mediator in the atopic reactions, administration of antihistaminics generally have good therapeutical effects.
7. Intentional desensitization procedures, provided that they are continued for a reasonably long time, generally have nice results.

House-dust vasomotor rhinitis

In the Netherlands we know another typical example of atopic vasomotor rhinitis i.e. rhinitis caused by house-dust atopy.

1. The clinical picture is nearly the same as in hayfever.
2. The house-dust season (fig. 1) runs from July to November. Especially in years with very rainy summers the house-dust contains vast amounts of allergens. Outside this house-dust season the dust contains only small quantities of allergen and though this may be the cause of some complaints, most patients are then much better.
3. Positive skin-reactions to house-dust are a conditio sine qua non.
4. Eosinophilia of blood and nasal mucus smears are regularly found and in the same frequency as in pollinosis.
5. Signs of the atopic constitution are found to the same extent in this disease as in hayfever.
6. Antihistaminics also influence house-dust vasomotor rhinitis favourably.
7. Desensitization with house-dust extracts gives in the long run good protection, though it must be admitted, because of the large quantities of impurities present in the house-dust extracts, that at the moment it is impossible to administer sufficiently high concentrations of those extracts, so that we cannot yet give amounts of house-dust allergen comparable with those of pollens.

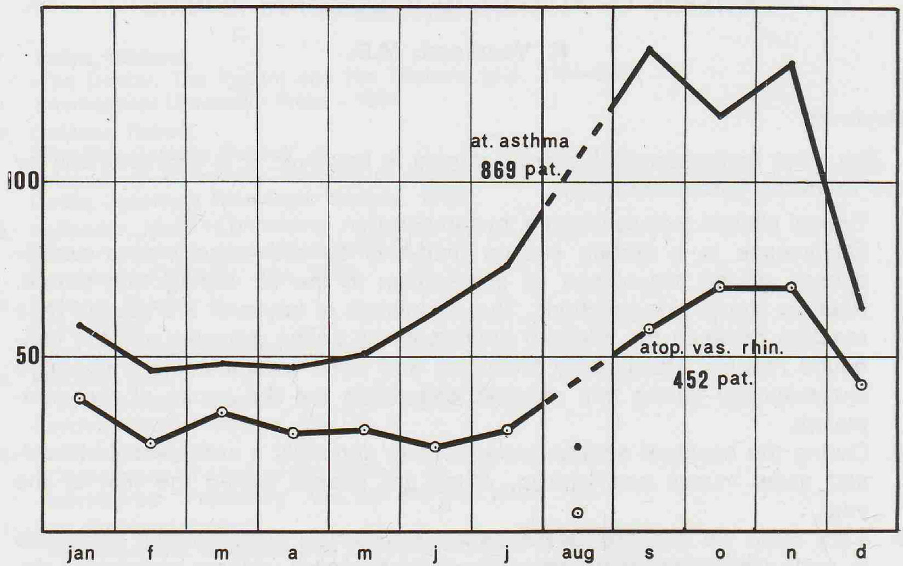

Fig. 1

Patients with atopic house-dust asthma or vasomotor rhinitis. First visits to the department of Allergology of the University Hospital - Leiden, during the years 1957 - 1961. (The figures for the month August must be neglected at the department was closed in that month during the years 1957 - 1960).

Patients atteints d'asthme ou de rhinite vaso-motrice atopique (dus aux poussières de ménage). Première visite au Service d'Allergologie de l'Academisch Ziekenhuis de Leyde au cours des années de 1957 à 1961. Les chiffres relatifs au mois d'août doivent être laissés de côté du fait que le Service a été fermé pendant ce mois au cours des années de 1957 à 1960.

	house-dust asthma	house-dust vas. rhinitis	
January	59	38	
February	46	25	
March	48	34	
April	47	28	
May	51	29	
June	63	24	
July	76	29	
(August)	(24)	(5)	(holidays)
September	138	58	
October	119	70	
November	134	70	
December	64	42	
	869	452	

Quantitative aspects

In hayfever we seldom see asthmatic complaints. This is due to the fact that the relatively large pollen corpuscles (diam. 20—30 μ) are caught for the greater part by the mucous membranes of the nose.

House-dust allergen however enters the body with corpuscles which are much more variable in size, so that vasomotor rhinitis is very frequently complicated by asthma. Nevertheless the greater part of allergen-containing dust particles is caught by the nose. This is the reason why in cases with a slight degree of atopy and in cases with a small exposure to house-dust allergen, only vasomotor rhinitis is found, and in cases either with strong degrees of atopy or of large exposure, asthma too.

We could demonstrate these quantitative factors repeatedly. In comparison with atopic asthma, patients with vasomotor rhinitis have:

1) slighter skin-reactions and a lower atopisation percentage.
2) a lower blood eosinophilia.
3) a lower nasal mucus eosinophilia.

Other observations which point in the same direction are:

1) that many house-dust atopic persons in the autumn have rhinitis plus asthma, during the rest of the year rhinitis only.
2) that if the atopic factor subsides after a number of years, we see that asthma disappears first. The rhinitis remains and generally disapears only after many years. We see the same sequence in symptoms in the course of our therapeutic desensitization procedures.

Non-atopic vasomotor rhinitis

If we exclude vasomotor rhinitis as a complication of asthma, we can see that in the group of patients with vasomotor rhinitis only, atopic cases are not seen as frequently as non-atopic ones.

1. The clinical picture of non-atopic vasomotor rhinitis differs somewhat from that of atopic rhinitis. Swelling of the mucous membranes of the nose and sinuses is much more typical for these cases. Moreover purulent rhinitis, sinusitis and otitis complicate non-atopic vasomotor rhinitis much more frenquently than they do the pure atopic cases.
2. There is in non-atopic rhinitis no typical seasonal incidence. The patients visit the allergologist the whole year round, though they are seen a little more frequently in winter and in spring.
3. Positive skin-reactions to atopic allergens are absent, so that we can exclude an atopic mechanism with a high degree of certainty.
4. An eosinophilia of blood is (except in the pre-atopic cases) almost always absent and that of nasal mucus also as a rule.
5. It might be that there is a hereditary factor, but not the same as that for atopy. We believe that in the families of patients with non-atopic rhinitis, patients are frequently found with other purulent processes, such as

purulent bronchitis, sinusitis etc.

6. Antihistaminics may have a favourable influence on sneezing attacks and watery discharges, they have hardly any influence on the complaints of swelling of the mucus membranes and on the purulence.

Post-infectious and post-atopic vasomotor rhinitis

Non-atopic vasomotor rhinitis is found most typically after a period of purulent rhinitis, thus after common colds. It may last some days, some weeks, some months or even many years, and we think it is due to an abnormal delayed type allergic reaction of the body to products of the normal commensal bacteria of the nose.

The same holds true in cases of hayfever and of house-dust rhinitis. After the season of strong exposure of these allergens many patients, against all expectations, keep these complaints, though of somewhat different character. Especially common is the complaint of nasal obstruction.

Intensive search for another causal allergen in that period is mostly in vain, and the only possibility of explaining these post-atopic complaints is to suppose that during the period of manifest atopy the bacterial flora of the nasal mucous membranes has changed, and that this has induced a non-atopic phase of nasal complaints after the allergens have disappeared. It is remarkable in this respect, that this phenomenon is especially seen in the group of older hayfever patients.

Pre-atopic rhinitis

Atopy is not present at birth and develops generally in the course of 5—10 years (in boys somewhat earlier than in girls).

The children, who are not yet atopic, nevertheless frequently have complaints of otitis, rhinitis or bronchitis. We called this phase the pre-atopic phase (Voorhorst et al 1963). The pathogenetic mechanism which underlies these complaints is not yet an atopic one, thus no allergen-reagin reaction.

It is much rather an infective one with an important delayed type allergic component. Treatment of these cases must first be antibacterial and frequently also anti-(delayed-type)allergic.

We can distinguish these pre-atopic cases frequently from the primary non-atopic patients.

In pre-atopy we find as a rule already a huge blood eosinophilia (without nasal mucus eosinophilia). The presence or the history of constitutional eczema and the presence of atopic patients in the family may also be a help for the diagnosis of pre-atopy, but only the development of the atopy after some years can be taken as the final proof that the diagnosis of pre-atopy was correct.

Mixed and doubtful forms

Seeing the state of affairs in vasomotor rhinitis, it is evident that it is very difficult to classify a patient in one of the groups of the scheme just developed (table 2).

Table 2.

Different forms of vasomotor rhinitis.

I **pure atopic**
a) hayfever
b) house-dust atopy
c) other forms of atopy (uncommon)

II **non atopic vasomotor rhinitis**
a) post-infectious
b) post-atopic
c) pre-atopic

III **mixed and doubtful cases.**

It is quite understandable that in a certain case of rhinitis a definitive classification can only be reached after calculating the patients' own anamnesis, after obtaining clinical data from an observation over the whole year and after considering the results of therapeutic measures such as desensitization and administration of antihistaminics, antibiotics, corticoids, etc.. It is a fallacy to expect that only one examination with skin-tests suffices for the diagnosis of a patient with vasomotor rhinitis. Diagnosis and therapy of vasomotor rhinitis go hand in hand.

LES SYNDROMES ALLERGIQUES

Résumé

Il y a lieu de distinguer trois formes de **rhiniti vaso-motrice atopique:** 1) la pollinose; 2) la rhinite due aux poussières du ménage (avec une pointe de fréquence en automne) et 3) la rhinite due à des allergènes occasionnels.

La rhinite vaso-motrice non atopique, qui est plus allergico-infectieuse de caractère, doit être subdivisée en:
1) rhinite non-atopique; 2) rhinite pré-atopique (observée chez les jeunes gens et s'accompagnant d'une augmentation du nombre des leucocytes éosinophiles du sang); 3) rhinite post-atopique.

Il existe par ailleurs encore de nombreuses autres formes mixtes et difficiles á classer. Dans beaucoup de cas, la classification définitive ne peut être opérée qu'après une période d'observation clinique relativement longue.

BIBLIOGRAPHY

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