

Ear, Nose and Throat Clinic of the University of Milan, Italy
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TOPOGRAPHICAL ASPECTS OF ALLERGY TO HOUSE DUST

By

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It has been observed that there is a difference in the percentage of subjects suffering from allergy of the respiratory tract in different regions of the same country. As a matter of fact, damp localities are generally considered unfavorable to allergic patients (Urbach).

Research work on this particular aspect of allergy has been carried out in various countries: a higher incidence of respiratory allergy in humid climates has been observed by Van Leeuwen in Holland; by Jimenez Diaz, Sanchez Cuenca, and others, in Spain; and by Rowe, Curry, and Metzger in the United States of America. Comparative investigations, undertaken in Great Britain and in Germany, have given similar results. It has also been noticed that some patients living in humid climates obtain relief by changing their residence to a drier area (Godin).

More recently, Harsh in the United States and Maunsell in England, have drawn attention to the fact that the greater incidence of respiratory allergy in humid climates might be due less to "the climate per se", but rather to the degree of humidity present in the air, rendering house-dust more allergenic (Harsh).

Even in the same town, it is possible to observe a different distribution of patients with respiratory allergy, as has been

demonstrated by Pasteur Vallery-Radot in Paris, by K. Maunsell in London, as well as by Harsh and others. These researches show that there is a close relationship between the presence of waterways and the incidence of allergy to house-dust, that is to say this form of allergy appears to be much more frequent near rivers, canals etc. This relationship applies to hidden waterways, too (Maunsell).

PERSONAL RESEARCHES

To test this thesis, we have undertaken a survey of a group of patients treated in the last few years in the Allergic Department of the Ear, Nose and Throat Clinic of the University of Milan for allergy to house-dust. We have studied the topography of the houses where these patients lived at the onset of their symptomatology, registering their situation on a map of Milan's rivers and encased waterways. All cases in which disease began in houses situated at a distance not exceeding 180 yards (160 meters) from the nearest waterway were regarded as positive. This discrimination has been drawn from Miss Maunsell's researches; she has observed that the majority of her patients sensitive to house-dust lived within the said distance from the nearest waterway.

We have studied 52 patients, out of 1560 cases of allergy treated in our Clinic, selecting those suffering from vasomotor rhinitis owing to sensitization to house-dust, as shown by their clinical record; by a strong positivity to house-dust; by good results of specific treatment; and, in some cases, by a marked clinical improvement, when they changed their residence to another area.

The following data have been obtained from this research:

Total af allergic patients	52	
Residence within 180 yards (160 m)		
of nearest waterway	46	(88.4 %)
Residence beyond 180 yards (160 m)	6	(11.6 %)

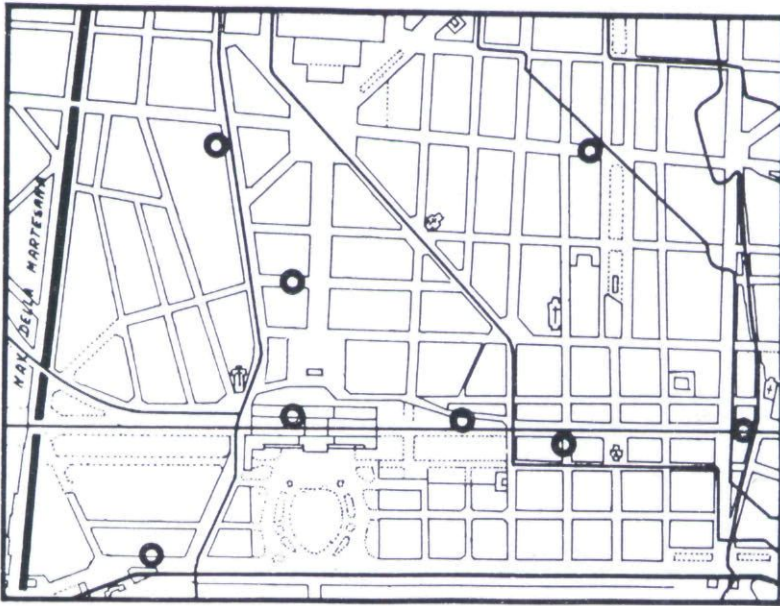


Fig. 1.

Detail of Milan's hydrographic map, showing the distribution of some of our cases of allergy to house dust in the vicinity of open rivers and covered canals. (Scale 1:12000).

As it appears from this table, the great majority (88.4 per cent) of our patients lived within a maximum distance of 180 yards from the nearest river or canal. Since the network of canals and open rivers of the city of Milan covers a very large region, and thus the distribution of waterways is almost uniform throughout this area, a group of definitely non-allergic patients, selected at random from those treated in our clinic for minor ailments of the ear, tonsils, etc., were subjected to the same research to check the significance of the above observations; the results to be used as paired controls. Here are the findings observed in this second group:

Total of paired controls	52	
Residence within 180 yards (160 m)		
of nearest waterway	18	(34.6 %)
Residence beyond 180 yards (160 m)	34	(65.6 %)

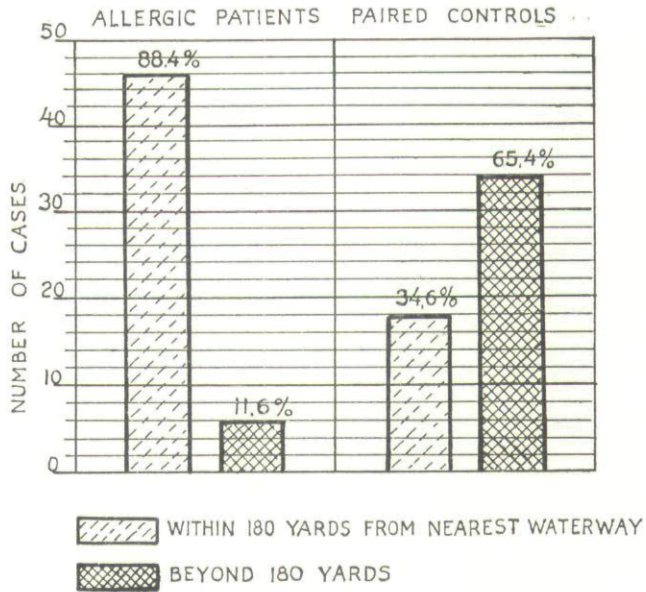


Fig. 2.

Comparative data, in relation to the distance of the dwelling from a waterway, of patients sensitive to house dust and paired controls.

All these data, as well as the preceding ones, have been found to be significant from the statistical aspect, which shows that these figures could hardly be attributed to chance.

Figure 2 shows, graphically, the comparative data obtained for allergic patients and paired controls.

As it appears from this table, the results of our investigation give further support to the statement that respiratory allergy due to house dust appears to be much more frequent in the proximity of waterways, such as rivers, canals, etc.

If we consider separately the five cases which showed not only a positive skin test to house-dust, but also a skin positivity to fungi, it is interesting to note that all of these patients had been living, at the onset of their symptomatology, within a distance of 180 yards of a waterway.

DISCUSSION

Various theories may be advanced for the interpretation of these findings:

- 1) that humidity "per se", being presumably of a higher degree in the soil where these houses had been built (Milan's soil mainly consists of clay), might act as an aggravating factor and excite an allergic syndrome, where otherwise a condition of balanced allergy would continue to exist. This hypothesis has been sustained by several authors, especially as regards bronchial asthma.
- 2) that humidity, rendering the houses damp, favours the development of moulds. This does not indicate that we are confronted with cases of allergy to fungi, but rather that these fungi break down organic material (such as paper, wool, feathers and other substances present in the house). In this way, a greater amount of allergens will be present per unit of house dust (Maunsell). This statement receives further support from the observation that the single allergens composing the house dust, (wool, dander, feathers and so on) may not give a positive skin-test while the complex of "house dust" being certainly composed of the preceeding allergens, results in a positive skin reaction. One might therefore admit the possibility of a modification, or activation, of the various constituents of house dust by the action of fungi, as suggested by Miss Maunsell.

Finally, in cases in which a positive skin test has been found, not only for house dust, but for fungi too, it is evident that humidity has been a factor of the greatest importance, favouring the development of fungi, which must be regarded as directly responsible for the sensibilisation.

From the results of this research, as well as from those previously mentioned, it is possible to infer that new problems arise for allergists, as well as for hygienists, and that further work will be called for to throw more light on this particular aspect of allergy, and to prevent the onset of these forms.

Acknowledgements: We are greatly indebted to Miss K. Maunsell (London) for supplying us with the details of her personal researches, and to Dr. Ing. N. Frugis of Milan's Municipal Administration for technical assistance.

SUMMARY

The results are given of a survey of the topographical distribution in Milan (Italy) of houses, where patients suffering from allergy to house-dust had been living at the onset of their symptomatology. The authors have been able to show that the great majority (88.4 %) of these subjects lived within a maximum distance of 180 yards (160 m) from the nearest open waterway, or covered canal. These results are briefly discussed.

REFERENCES

- Clerici, E. & Sambataro, C.:* Arch. It. ORL. Suppl. 13, 143, 1953.
Cooke, R. A.: Allergy in theory and practice, Saunders Co. 1947.
Curry, M.: Quoted by Harsh.
Del Bo, S.: Folia Allergol. 1, 48, 1954.
Harsh, G. F.: Proc. I Int. Congr. Allergy, 118, 1951.
Jmenez, Diaz G., Sanchez, Cuenca B. & Piug, J.: Journ. Allergy 3, 396, 1932.
Kessler, A.: Annals of Allergy 12, 261, 1954.
Maunsell, K.: Proc. I Int. Congr. Allergy 306, 1951.
Metzger, Y. C.: J.A.M.A. 112, 29, 1939.
Pasteur Vallery-Radot: Allergie, l'expansion scientifique française, 1948.
Rimington, C. & Maunsell, K.: Int. Arch. All. appl. Imm. 1, 117, 1951.
Rowe, A. H.: J. Allergy 13, 55, 1941.
Urbach: Allergy, Heinemann, London, 1946.
van Leeuwen, Storm W.: Allergic diseases, Lippincott, Philadelphia, 1925.
Vaughan, W.: Practice of Allergy, Mosby, St. Louis, 1948.
Volterrani, O.: Folia Allergol. 1, 75, 1954.

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