

From the Medical Out-Patients' Department, Allergy Consultation, of the
University Hospital of Copenhagen (Denmark).
Director: Professor Eggert Møller, M.D.

CONTROL EXAMINATION OF THE SPECIFICITY OF SPECIFIC DESENSITIZATION IN ASTHMA

By

EGON BRUUN

In the course of time asthma has been subjected to an almost interminable number of therapeutical methods, and even if we confine ourselves to considering only the forms of treatment employed for the time being, we will soon find that they are by no means few. Mention may be made at random of climatic treatment, shock treatment, vaccine therapy and pyretotherapy, remedial exercise, tuberculin and sulphur treatment, antiallergic therapy, antihistamine substances, and hypnosis, to take only the most common. It holds good of all these methods of treatment that, so far, none of them has with absolute certainty become generally accepted as the best form of therapy; but it may undoubtedly be said that the view that asthma is a disorder of primarily allergic determination is gradually becoming more widely accepted and that, consequently, we must await with increasing interest the results of the anti-allergic treatment, the most rational exponent of which is the specific desensitization.

After the specific treatment of hay fever had been introduced by Noon and Freeman in 1910-11 with so excellent a result, the idea almost suggested itself of attempting specific desensitization of *asthma* as well, in cases where a specific allergen could be demonstrated as the causative agent (Cooke, 1918); and in 1921 Caulfield was able to communicate the first results of specific desensitization of asthma-

tics, and the results were definitely promising. Later, this form of treatment met with difficulties and has hardly yet been placed where it belongs, but the last decades have seen this therapy become of increasingly greater interest. The results that can be achieved by specific desensitization of asthma are stated somewhat differently, but on examination of the results attained in Scandinavia (Salén, Stockholm; Flensburg and Bruun, Copenhagen) the figures relating to the patients who have distinctly improved in the course of a period of observation of about one year will be seen to be fairly identical, about 75 to 85 per cent. With regard to the effect on the *long-view* (3 years), E. Henriksen found a permanent improvement in 59 per cent. but considers that this figure will have to be somewhat reduced, because factors other than the specific desensitization may be active.

In spite of the fact that there are numerous publications on specific desensitization of asthmatics, the literature contains few, if any, unquestionable control examinations. It is known that 20-40 per cent. of all asthmatic children recover before puberty (1,5), a fact to which we should pay the greatest attention when judging the results of the various methods of treating infantile asthma. In a paper which has not yet been published, I believe to be able to demonstrate that the prognosis in *adult* asthmatics, with a seven years' period of observation, is by no means so favourable in the case of a spontaneous course—less than 10 per cent. will recover "spontaneously". Apart from this information, we lack reliable control examinations.

At the Medical Out-Patients' Department of the University Hospital of Copenhagen, where, since 1941, the specific desensitization of asthma has been systematically employed whenever possible, a thorough control examination of the specificity of the specific desensitization was, therefore, considered necessary. We all agree that asthma is to a certain extent a disease of psychic determination—or may at any

rate be so—, and that treatment at a special clinic for asthmatics may act as a sort of psychotherapy. Consequently, we considered that we had to undertake these control examinations ourselves, and they have been guarded with the closest secrecy—not even the nursing staff and the subordinate members of the medical staff knowing anything about the experiment.

In the course of a definite period—from the middle of 1945 to the beginning of 1947—we treated every other patient who suffered from house-dust allergy with the specific extract, and the remaining patients with suspension liquid containing no allergen, but bottled and labelled exactly like the specific extract, apart from the fact that it was provided with a minute descriptive mark which only two of the physicians knew of. Patients with odd case record numbers were treated with the specific extract, and patients with even case record numbers were treated with the suspension liquid. The practical procedure was as follows: Two extracts which looked quite alike, the specific and the suspension liquid, were made for each patient; after the diagnosis had been established by means of the specific extract, I replaced the latter with the suspension liquid in the case of patients with even case record numbers. These patients were then treated with the suspension liquid, which is just a slightly alkaline aqueous liquid, for just the same period, in exactly the same manner, and by the same physicians as the other patients. After the treatment had been concluded, a statement of the results was prepared, and after a certain period of observation—from 3 to 12 months—the patients were asked to appear for after-examination. The patients were all adults who had been suffering from asthma for a long time.

The results will appear from Table I.

The first group—patients under specific treatment—comprises 100 patients, as compared to 89 in the group of controls. This is due to the fact that, in order to exclude the effect on asthma of seasonal change, the two series of experiments were undertaken simultaneously during exactly the same

TABLE I
Results 3 to 12 Months after End of Treatment.

	Symptom-free	Improved	Unchanged	Worse	Treatment interrupted	Total no. of patients
Specific desensitization ...	13=13.6 %	61=64.2 %	18=18.9 %	3= 3.2 %	5	100
	$78 \pm 4.3 \%$		$22 \pm 4.3 \%$			
Controls ...	3= 3.7 %	25=30.5 %	45=54.9 %	9=11.0 %	7	89
	$34 \pm 5.3 \%$		$66 \pm 5.3 \%$			

period, and when one group—which thus became that submitted to specific desensitization—reached the number of 100 patients, the examination was concluded.

It will appear from Table I that specific desensitization produced a distinct improvement in 78 per cent., whilst 22 per cent. did not improve. The probable mean error of the mean figure of these two values is ± 4.3 per cent. In the group of controls, improvement took place in 34 per cent., and no effect was produced in 66 per cent., the mean error of the mean figure being ± 5.3 per cent. There is thus a great difference between the results obtained in the two groups, but at the same time it is of great interest to observe that one-third of the control patients improved—even with so long a period of observation as one year—solely by means of injections of a slightly alkaline liquid. This means that we must reckon with the fact that—if carried out with the complete apparatus employed at an asthma consultation—*any new method of treatment of asthma will be followed by improvement in about one-third of the patients irrespective of the somatic effect of this treatment.* But it does not mean that one-third will get rid of the disease; for the proportion freed of symptoms is extremely small, only about 3.7 per cent., a figure that is well in keeping with the pessimistic view of the prognosis for the spontaneous course in adult asthmatics

that has already been mentioned. According to our present knowledge, spontaneous recovery can doubtless be ignored as an essential factor in the case of adults only, but there is probably a certain tendency towards "spontaneous" variation also a positive direction, corresponding perhaps, in magnitude to the 11 per cent. who get worse. It can therefore hardly be said that the psychological factor of the treatment in question alone produces an improvement in 34 per cent., but the 34 per cent. must be considered a maximum figure. Nor can it be said that the specific desensitization produces improvement in only $87-34 = 44$ per cent., for (1) the 34 per cent. is a maximum figure, and (2) the improvement in some of the 78 per cent. is undoubtedly due *both* to psychological and humoral factors.

It will moreover appear from Table I that 22 per cent. did not improve by means of specific desensitization, whilst the corresponding figure in the group of controls was 66 per cent. There is thus every reason to continue and intensify the specific anti-allergic treatment.

In order to ascertain that no special factors, in particularly the common infectious complications in asthma, might have given an unequal distribution of patients in the two groups of the material, it was examined whether the two groups were comparable in that respect.

It proved that of 95 specifically treated patients 47 were suffering from chronic infections of the respiratory tract (including the sinuses), while in 48 patients no such complications could be demonstrated. In the control-material consisting of 82 patients, infections caused complications in 40 cases, while the other 42 were free of complications. Thus there seems to be a fairly equal distribution of infectious complications within the two groups of patients.

In studying the result of the treatment in the groups of complicated and non-complicated asthma, it will be seen from Table II that there is no definite difference. In the specifically treated group, 33 complicated and 28 non-complicated cases showed improvement, i.e. almost the same result in complica-

TABLE II
Distribution of the Infectious Complications within the two Groups.

Specific Desensitization.					
	No. of patients	symptom-free	improvement	Unchanged	Worse
+ complications	47	1	33	11	2
— complications	48	12	28	7	1
Total	95	13	61	18	3
Controls.					
+ complications	40	0	9	25	6
— complications	42	3	16	20	3
Total	82	3	25	45	9

ted as in non-complicated cases, and this holds for almost all the figures. This means that the effect of the specific desensitization in cases of true allergic asthma must generally be considered independent of the complicating infections (in this connection it must be pointed out that there were no cases of bronchiectases in the material). However, in one direction there seems to be a difference: Among the infectiously complicated cases only one patient was freed of symptoms, but among those free of complications this result was achieved in 12 cases. This may suggest that a really fine result in the majority of cases is obtainable only with patients who do not suffer from complicating infections.

In 28 patients we were able to carry through a kind of double control, as these 28 were first treated with the suspension liquid and then—after a suitable period of observation—with the specific allergen. The results will appear from Table III which shows that 22 out of 28 patients remained uninfluenced by treatment with suspension liquid, whereas in the *same group of patients* only 7 out of 28 did not improve after specific desensitization.

TABLE III
 28 Patients first treated with Suspension Liquid ("Control") and then with Specific Desensitization.

	Control	Specific Desensitization
Symptomfree	0 } 6=21 %	2 } 21=75 %
Improved	6 }	19 }
Unchanged	19 } 22=79 %	5 } 7=25 %
Worse	3 }	2 }
Total of patients	28	28

Probable mean error on the mean figure $\pm 7.9\%$ and $\pm 8.3\%$.

CONCLUSION

The results of the above examination must be (1) that about one-third of all grown-up patients with long-standing asthma will improve for some time when they are no more than under the psychic impression that they are being given a rational asthma therapy, and (2) that the specific desensitization produces results far superior to those produced by this psychotherapy, as about 78 per cent. improve or are freed of symptoms by this treatment. These examinations have thus provided the basis of a quantitative estimate—with certain reservations—of the psychic factor in the treatment of asthma.

BIBLIOGRAPHY

1. Bray, W.: Recent Advances in Allergy, London 1937.
2. Bruun, E.: Nord. Med. 28, 2581, 1945.
3. Caulfeild, A. H. W.: J.A.M.A. 76, 1071, 1921.
4. Cooke, R. A.: New York Med. Journ. 107, 577, 1918.
5. Flensburg, E. Winge: Acta Pædiatrica XXXIII, 1945/46 and Ugeskr. f. Læger 108, 453, 1946.
6. Henriksen, E.: Acta Allergologica 1, 204, 1948.
7. Noon, L.: The Lancet, 1572, 1911 I.
8. Salén, E. B.: Sv. Läkaretidn. No. 1, 1946.

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