

DESENSITIZATION DURING LOMUDAL TREATMENT

Nils Svanborg: There is general agreement regarding the clinical benefits of Lomudal treatment, particularly in allergic asthma, but some controversial questions remain; for example, if it is possible to use higher concentrations of allergen extracts during desensitization with Lomudal protection against bronchial reaction.

In our material the bronchial sensitivity was reduced during Lomudal protection. The patients could tolerate higher concentrations of allergen, but given a big enough dose they still showed symptoms. In this way, however, variations in bron-

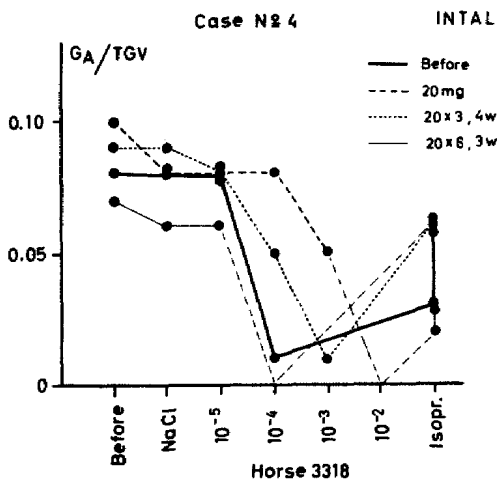


Fig. 1.

Effect of Lomudal in different doses on airways conductance (GA/TGV) before, during and after provocation with inhalation of specific allergen.

Case no. (allergen investigated)	Bronchial sensitivity to allergen during treatment					Remarks symptomatic treatment
	Symptomatic drugs only	Lomudal 20 mg	Dexamethasone (inhaled) 1.2 mg/dose	Slow desensitization Lomudal/no protection		
1 M.N. (Dog epithelium)	(+) +	+	(1 Week) ↓ —	(5 Months) ↓ +	(3 Weeks) ↓ —	Since start of treatment no symptoms. No sympt. drugs used. Exercise tolerance became normal when Lomudal, dexameth. or full dose desensitization was given.
2 H. J. (House dust)	+ + +	+ + +	(1 Week) ↓ +	(4 Months) ↓ +	(6 Months) ↓ + +	Free from symptoms and no sympt. drugs needed during Lomudal or dexameth. for last 6 months. Full dose desensitization only, with no asthma.
3 A. K. (Horse dander)	+ + +	+ + +	(3 Weeks) ↓ + + +	(15 Months) ↓ +		Severe asthma during treatment. Decreasing symptoms and use of drugs. No attacks last year. Desensitized to horse, mould.
4 A. Y. (Horse dander)	+ + +	+ + +	(1 Week) ↓ + + +	(8 Months) ↓ + +		Severe Asthma, during treatment free from attacks. Symptomatic drugs occasionally used. Desensitized to horse, dust.
5 B. S. (House dust)	+ + +	+	(1 Week) ↓ (+) +	(7 Months) ↓ +	(4 Months) —	Free from symptoms during treatment. Exercise tolerance became normal without drugs.

Provocation test - 1 ml extract in conc. $1/10 = 10^{-1}$; + : positive; - : negative.

++ : positive reaction with $1/100 = 10^{-2}$.

+++ : positive reaction with $1/1000 = 10^{-3}$.

++++ : positive reaction with $1/10,000 = 10^{-4}$.

Fig. 2.

Effect of treatment on bronchial sensitivity (slow hyposensitization).

chial sensitivity can be followed and, for example, the effect of desensitization can be registered.

Ten patients with a known Type I allergy have been followed for several years (1), using among other procedures titration of bronchial sensitivity to different allergens and measurement of airway conductance. We studied the effect on bronchial sensitivity of various treatments—Lomudal, inhaled dexamethasone-phosphate or isonicotinate—during desensitization. For each patient the same extract has been used for provocation tests, for blood-reagin estimations (in co-operation with Leif Wide) and for desensitization. One group (patients 1 to 5) was subjected to slow desensitization, being given one injection of allergen extract each week which was slowly raised to full dose, and which was repeated every 2 to 3 weeks thereafter. The other group (patients 6 to 10) were desensitized rapidly, each patient being given several injections daily

Case no. (allergen investigated)	Bronchial sensitivity to allergen during treatment					Remarks symptomatic treatment
	Symptomatic drugs only	Lomudal 20 mg x 4/d	Dexamethasone (inhaled) 1.2 mg/dose	Rapid desensitization Lomudal/no protection		
6 E. F. (Birch pollen)		{1 Week} ↓	{1 Week} ↓	{2 Weeks} ↓	{4 Weeks} ↓	No symptoms or symptom, drugs used since start of treatment. On Lomudal or dexameth, inhalation exercise tolerance became normal.
	+	+	+	+	+	
7 S. F. (Mould)		{1 Week} ↓	{1 Week} ↓	{4 Weeks} ↓	{2 Weeks} ↓	No symptoms or symptom, drugs used with Lomudal or dexameth, aerosol. Exercise tolerance became normal.
	+	+	+	+	+	
8 R. S. (House dust)		{1 Week} ↓	{1 Week} ↓	{7 Weeks} ↓		Both symptom, drugs and Lomudal in asthma periods, but increased tolerance to exercise.
	+	(+)	—	+	(+)	
9 E. S. (Dog epithelium)		{4 Weeks} ↓	{1 Week} ↓	{5 Weeks} ↓	{2 Weeks} ↓	By exp to dog slight asthma. Exercise tolerance normalised. Less sympt. drugs no asthma but Quincke's oedema during desensit.
	+	+	+	(+)	+	
10 C. S. (Dog epithelium)		{1 Week} ↓	{2 Weeks} ↓	{10 Weeks} ↘		In period without Lomudal asthmatic symptoms.
	+	+	+		—	

Provocation test = 1 ml extract in conc. $1/10=10^{-1}$ or 10,000 P. N. U.

+: positive; —: negative.

++: positive reaction with $1/100=10^{-2}$ or 1000 P.N.U.

***: positive reaction with $1/1000=10^{-3}$, or 100 P.N.U.

Fig. 3.

Effect of treatment on bronchial sensitivity (rapid hyposensitization).

of increasing concentrations of two alternate antigens until the full dose was reached. Both antigen extracts were then given together every 2 to 3 weeks thereafter.

As an example, we were able to show that in one patient, inhalation of 1 ml of horse epithelium in a dilution of 1 : 10,000 caused an asthmatic attack. When repeating the test with Lomudal protection 1 week later, we had to use a concentration of 1 : 100 to provoke asthma (Fig. 1). The decrease in sensitivity varied during long-term treatment with Lomudal, which may have paralleled reduction in dosage of other drugs. It is quite obvious that Lomudal has a good effect in this test, but that it does not totally inhibit the allergic reaction (2).

A comparison of bronchial sensitivity to specific allergens, indicating a slowly decreasing bronchial sensitivity during slow desensitization, and the effect of the various treatment regimens, is shown in Fig. 2. Lomudal has also been used during

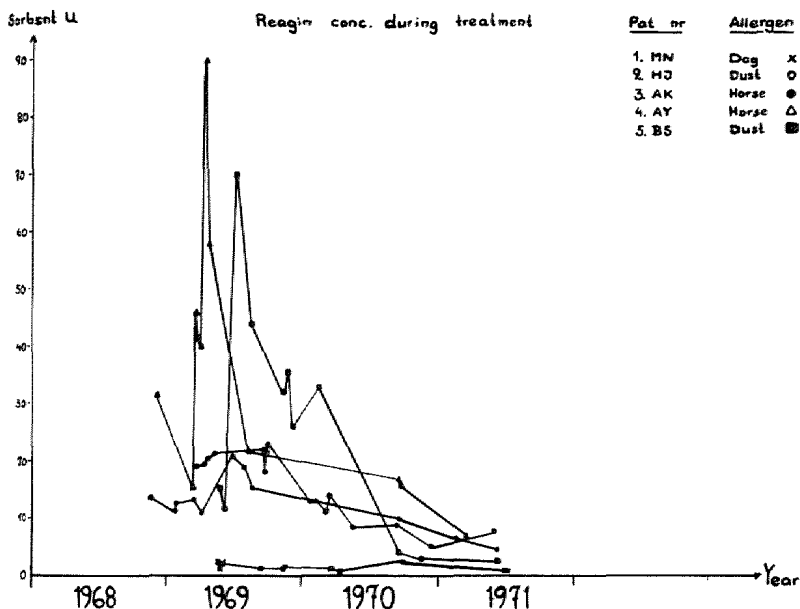


Fig. 4.

Specific reagin levels during slow hyposensitization.

the period when the dose of allergen was increased. The same comparison during rapid desensitization is shown in Fig. 3.

Both groups have been followed for at least 1½ years. The results from slow desensitization with Lomudal protection seem in this material to be better than those from rapid desensitization. The clinical improvement seems to be parallel to the reduction in bronchial sensitivity. Lomudal protection has in both groups facilitated the desensitization.

The reduction in sensitivity with dexamethasone is surprising. It might be linked to an effect on the synthesis of mediators or prostaglandins. Its clinical usefulness, however, is limited by the doses used, which were large enough to cause adrenal suppression.

Initially, during Lomudal treatment and also during de-

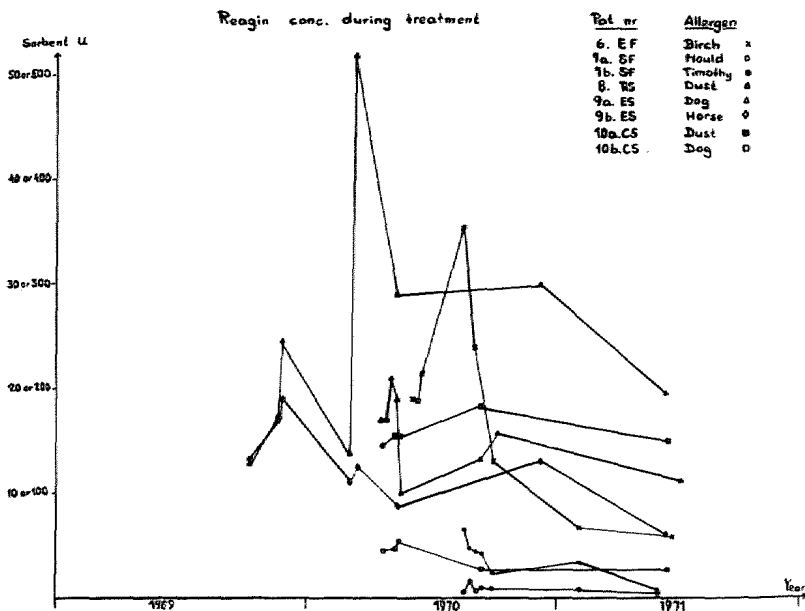


Fig. 5.

Specific reagin levels during rapid hyposensitization.

sensitization with Lomudal protection, there was a tendency for serum levels of reagins to increase and then decline. The increase was not correlated with marked clinical reactions.

Fig. 4 graphs reagin levels before and during slow desensitization with Lomudal protection, and Fig. 5 graphs the reagin levels during rapid desensitization. An initial increase in the reagin levels followed by a decline is seen in both groups.

To sum up, I think we have shown that Lomudal can give noteworthy protection against asthma caused by the inhalation of specific allergens. It is also useful for the prevention of asthmatic reactions during desensitization, whether slow or rapid. We have not seen any increase in the frequency of reactions to the injections, although some patients have shown local skin reactions and one patient developed Quincke's

oedema. Bronchial sensitivity to the specific allergen decreases during the first year, mainly due to Lomudal, and then tends to be further reduced or abolished during desensitization. Specific reagin levels increase initially during Lomudal treatment and also during desensitization under Lomudal protection, but there is no obvious clinical impairment which could be an effect of Lomudal. Reagin levels subsequently decline during continued desensitization. Exercise tolerance is increased during Lomudal treatment, and sometimes this increased tolerance remains even when Lomudal is withdrawn after desensitization.

REFERENCES

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2. Holmgren, A., Olsson, A. G., Svanborg, N. & Wide, L. (1972): The effect of disodium cromoglycate on airway conductance and on serum cortisol and serum reagins in asthma. *Acta allergol.* 27, 27.

Discussion

B. Uvnäs: Which do you think gives the best results—Lomudal, hyposensitization, or a combination of the two?

N. Svanborg: Hyposensitization can be a difficult procedure, particularly for the patient, and Lomudal treatment can be valuable. Although we have not carried out a double-blind study, I feel that the end result in terms of bronchial sensitivity is better with Lomudal and desensitization together than with Lomudal alone.

T. Berg: There have been studies, by Paterson and others, which have shown that the use of high doses of allergen in hyposensitization gives better results. This tempted us to use high doses for injection under Lomudal treatment, but we were not prepared to carry this out because of the risk of anaphylactic reactions involving organs other than the lung. What is your attitude to this?

N. Svanborg: This was the reason for including the information on the rapidly-desensitized group. These patients were treated in hospital and injections were stopped as soon as a local reaction was seen. The only reaction of note was the one case of Quincke's oedema.

B. Simonsson: Can Lomudal be used as protection against a possible type III reaction from injection of allergen?

N. Svanborg: I would like to discuss this later when we talk about complications of Lomudal treatment. I think the reports of pulmonary infiltrates with eosinophilia during Lomudal treatment may be related to an allergic reaction taking place despite Lomudal treatment.

J. Høven: Have you tried giving the maintenance dose without Lomudal?

N. Svanborg: I tried to withdraw Lomudal, but three patients complained of increased difficulty. In general, however, I found it was possible to withdraw Lomudal once the maintenance dose was reached.

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