

Goat's milk allergies in children following specific oral tolerance induction to cow's milk

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INTRODUCTION

Being allergic to goat and sheep's milk whilst having a good tolerance to cow's milk is relatively uncommon.¹⁻⁴

For cow's milk allergy, keeping to a dairy-free diet is the recommended treatment and the patient is advised against introducing milk from other ruminants due to the existence of cross-reactivity between species.⁵

When there is not a spontaneous evolution towards tolerance from four years of age, the allergy is considered persistent. Recently, there has been a move to treat those patients with specific oral tolerance induction (SOTI). The results are good and enable patients to follow a diet without any cow's milk restrictions.⁶⁻⁸

It would seem logical to suppose that induced artificial tolerance to cow's milk proteins could extend to all dairy proteins regardless of their animal origin, as usually occurs in natural tolerance. However, some of our patients treated in this way have suffered allergic reactions after having eaten goat and sheep cheese.

We report two cases of an IgE-mediated allergy to goat and sheep's milk without any actual clinical CMA.

CASE REPORT

Case 1

A 7-year-old girl with a persistent allergy to cow's milk proteins followed a course of SOTI until she reached a quantity of 200cc and now she currently has dairy products on a daily basis. On eating goat and sheep cheese she has on various occasions presented oropharyngeal and otic pruritus that have subsided with antihistamines.

Case 2

A 9-year-old boy with a persistent allergy to cow's milk proteins followed a course of SOTI attaining 200 cc of milk and at present he has cow's milk and cow cheese on a daily basis. After eating goat cheese he has suffered two episodes of palm-plantar pruritus and generalized exanthema, requiring antihistamine and corticoid treatment.

Both patients have continued to tolerate cow's milk and cheese.

Following these episodes, skin prick tests (SPT) were performed using cow's milk and prick-by-prick cow, goat and sheep cheeses. Total seric IgE as well as specific IgE (UniCAP[®]; Pharmacia Diagnostics, Uppsala, Sweden) to cow's milk and its proteins (including casein), sheep's milk and goat's milk were determined.

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Case 1: SPT to: cow's milk: 14 × 7 mm, cow cheese: 6 × 4 mm, sheep cheese: 11x10mm and goat cheese: 8 × 7 mm.

Total IgE: 129 UI/ml, IgE specific to cow's milk: 18.9 KU/L, cow casein: 3.81 KU/L, goat's milk: 17.7 KU/L and sheep's milk: 17.1 KU/L.

Case 2: SPT to: cow's milk: 14 × 7 mm, cow cheese: 7 × 6mm, goat cheese: 24 x16mm and sheep cheese: 20 × 13 mm.

Total IgE: 218 UI/ml, IgE specific to cow's milk: 4.32 KU/L, cow casein: 2.82 KU/L, goat's milk: 11.1 KU/L and sheep's milk: 11.7 KU/L.

SDS-PAGE Immunoblotting was carried out using cow's milk and goat's milk, showing multiple bands for both. In the SDS-PAGE-Immunoblotting for goat's milk proteins using cow's milk, cow casein, and goat's milk as inhibitory phase showed a band of 30KD compatible with goat casein molecular weight which was only inhibited by the goat's milk (fig. 1).

DISCUSSION

Specific Oral Tolerance Induction (SOTI) has been proven to be able to induce oral tolerance in milk allergy, but the body of evidence concerning SOTI in humans is rather poor.

We reported two cases of children successfully desensitized and with a long-term tolerance to cow's milk and cow cheese, who presented allergic reactions after consumption of goat cheese. Induced tolerance to cow's milk can be species-specific and does not guarantee tolerance to the milk of other ruminants.

We identified goat casein as the main allergen causing sensitization.

Therefore, we believe that artificial SOTI treatment is species-specific and does not imply tolerance to the milk of other ruminants. The intake of goat and sheep cheeses can spark off a chain of unexpected allergic reactions in patients that have achieved induced tolerance to cow's milk.

CONCLUSIONS

Once desensitization to cow's milk SOTI has been achieved, a diet free of goat and sheep cheese

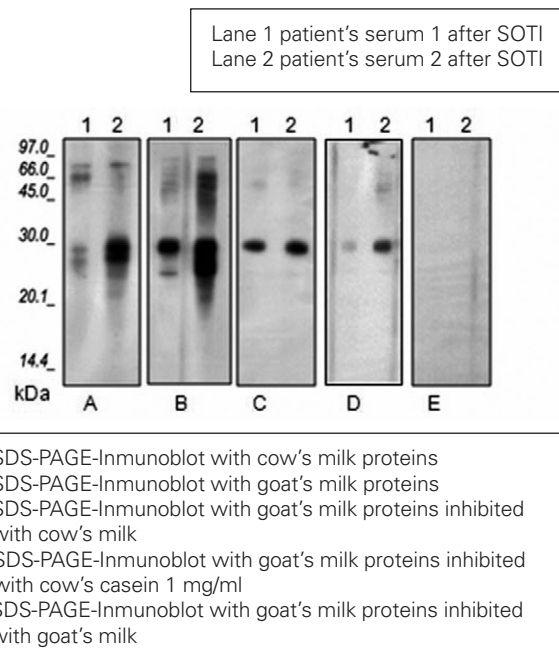


Fig. 1—

should be adhered to until tolerance has been tested using controlled challenge.

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