

Primin in the European standard patch test series for 20 years

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Primin was included in the European standard series (ESS) in 1984. In 2000, a primin-free variant of *Primula obconica*, the main source of contact allergy to primin, was introduced in the market. The aim of this study was to analyse the trends of primin allergy in 13 986 consecutively patch-tested eczema patients over a 20-year period from 1985 to 2004. 151 patients gave a positive patch test to primin. The majority were women, in two-third of patients the patch test was relevant and most presented with hand eczema. Only few of the cases (4.7%) were occupational. A significant decline of contact allergy to primin was seen ($P < 0.001$) over the years affecting all age groups. The frequency was 0.5% during 2000–2004. Contact allergy has been rare since 2000. The low frequency of positive patch test to primin does not support inclusion in the ESS in our region.

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Primula dermatitis is a well-established clinical entity, which typically comprises linear streaks of erythema with vesicles and bullae on the forearms, vesicles on the fingers, and sometimes facial involvement (1, 2).

The disease has been particularly frequent in the northern part of Europe and it typically affects older women, who take an interest in nursing plants; occupational cases are also seen. In a questionnaire study among *Primula* growers in the UK, 26% attributed a cutaneous reaction to *Primula* species (3). Although *Primula obconica* usually is the culprit, primin can be detected in other *Primula* species; these, however, rarely cause clinical disease due to a low level of allergen (3). Patch testing with primin 0.01% in petrolatum (pet.) is a useful screening tool for primula dermatitis (4), although cases that can only be diagnosed by patch testing with parts of the plants occur (5). Due to gene modification, primin-free *P. obconica* has been available since 2000 (6).

At the same time, there has been a dialogue in Denmark with the industry concerning the benefits of producing primin-free *P. obconica* for the north European market.

The aim of the present study was to analyse the frequency of primin allergy over a 20-year period in a university clinic in order to detect any changes

that might be related to the introduction of primin-free *P. obconica* in the market.

Materials and Methods

From 1985 to 2004, 13 986 patients with suspected contact allergy were patch tested with the European standard series (ESS) at the Department of Dermatology, Copenhagen University Hospital, Gentofte.

In the whole period, primin 0.01% in pet. from Trolab, Reinbek, Germany was part of the standard series. Procedures for patch testing were unchanged in the study period. Patch tests were occluded with Finn Chambers[®] (Epitest 04, Helsinki, Finland) and fixed with Scanpor tape[®] (Norges plaster A/S, Oslo, Norway) for 2 days. A positive reaction was defined according to international guidelines as homogeneous redness and infiltration in the whole test area. The outcome was defined as the maximum reaction on day 2 (D2), D3, D4, and D7.

Results

A total of 151 patients had a positive patch test reaction to primin 0.01% pet. Case records for 149 of these were obtained and analysed for intensity

of patch test reaction, relevance, eczema location, and concomitant allergies. Of the 149 patients with a positive reaction, there were 12 men and 137 women. 53 patients had an isolated positive reaction towards primin, while 27 had 1 other positive reaction and 69 patients had more than this.

The positive patch test reactions were primarily seen in older patients, as 82 (55%) were 61 years or older, 62 (42%) were between 31 and 60 years of age, while only 5 patients (3%) were 30 years or younger.

64 had + reaction, 71 had ++ and 14 +++ reaction. The strength of positive reactions was evenly distributed over the different age groups. As seen in Fig. 1, there has been a reduction in the number of patients tested positive with primin irrespective of age groups. Chi square for trend show a statistical reduction in the number of positive patch test reactions from 1.7% of tested patients during the period 1985–1989 to 0.5% during 2000–2004 ($P < 0001$). Of the 149 positive patch test reactions, 51 had a current relevance, 51 had a past relevance, and 47 had an unknown relevance. The proportion of currently relevant positive patch test reactions decreased in the last period (2000–2004) compared to 1995–1999 (Fig. 2a). The distribution of current relevance according to age groups is shown in Fig. 2b.

In 7 of the 149 patients (4.7%), primin allergy was work related (5 women and 2 men). 4 worked as florists, 1 worked as flower arranger, 1 worked in a garden centre and 1 as a cleaner at a nursing home. 6 had hand eczema and 1 had eczema on the forearms.

Of the 51 patients with current relevance of their patch test, 48 patients had ongoing eczema at the time of examination. In the last period (2000–2004), all the patients had hand eczema compared to the earlier period where other locations of eczema were also seen (Fig. 3).

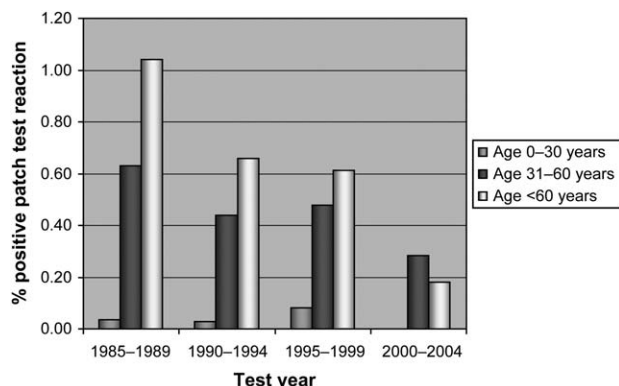


Fig. 1. Number of positive patch test reactions towards primin divided into age groups and test year.

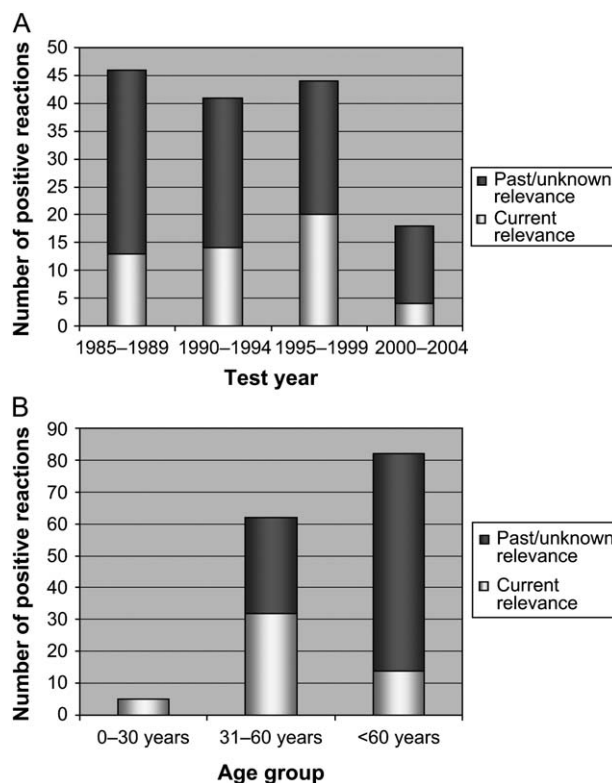


Fig. 2. **a** Relevance of the patch test reaction according to year of diagnosis; **b** relevance of the patch test reaction according to age of the patient.

Discussion

The frequency of contact allergy to primin has decreased significantly after 2000. The decline is seen in all age groups and can be due to a decreased production of *P. obconica* and/or an introduction of the genetic-modified primin-free variant. In our clinic, only 4 relevant cases all with hand eczema were seen after 2000. From the UK, similar results have been reported. Here, a significant decline in primin allergy was seen from 1995 to 2002 (7). Further, a telephone survey performed

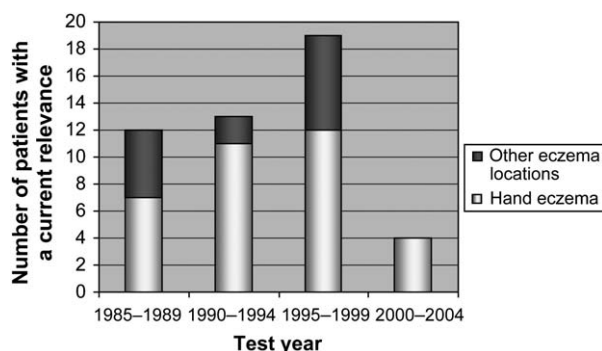


Fig. 3. Eczema location among patients with a positive patch test reaction with current relevance.

among selected seed suppliers and plant retailers showed that 50% of suppliers were selling primin-free varieties, while the majority of retailers were not selling *P. obconica* at all (7). In Denmark, there has been a reduction in the production of *P. obconica* from 448 000 plants in 2003 to 175 000 in 2005. Of these, approximately 25% are the primin-free variant, 'Touch-me' (personal communication; Floradania Marketing A/S, Odense, Denmark).

The clinical picture seen in our patients was typical with the majority of cases affecting the hands, and in two-third of the patients the positive patch test was either of present or past relevance. However, abortive cases exist where primula dermatitis show itself as a chronic facial or hand dermatitis, which do not clear before the suspicion of *P. obconica* exposure is raised by the positive patch test to primin.

Contact allergy to primin is now so rare in Denmark that the justification for inclusion in the standard patch test series is questioned. Data from the UK show a similar trend and if this is also confirmed in other countries, it may lead to the recommendation that routine patch testing with primin is terminated and primin is only used in aimed patch testing.

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