
The perceived obstacles in performing patch test to detect allergic contact dermatitis: a comparison between community allergists and directors of allergy training programs

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Background: Patch testing (PT) is the gold standard test to detect allergic contact dermatitis. Despite its usefulness, it is not universally performed in allergy practices.

Objectives: To determine obstacles in performing PT and to evaluate the differences in perception of these obstacles between community allergists and directors of training programs.

Methods: Two anonymous Web-based questionnaires were distributed to 65 program directors (PDs) across the United States and to 200 community allergists in the mid-Atlantic region. Program directors and community allergists were categorized based on PT performance. Community allergists were categorized based on type of practice. Comparisons between categories were made using the χ^2 test.

Results: Perceived obstacles among community allergists and PDs were similar; this remained unchanged regardless of performing PT. When community allergists in solo practice were compared with those in group private practice, the difference in perception was significant ($P < .01$). Previous training in PT among PDs and community allergists was associated with a higher likelihood of performing PT.

Conclusions: Previous training in PT among PDs and community allergists was associated with a higher likelihood of performing PT. We recommend that training in the application and interpretation of PT for diagnosis of allergic contact dermatitis should be an integral part of the curriculum of allergy fellowship training programs and should also be incorporated into the continuing medical education program of practicing allergists. Furthermore, although allergists may continue to rely on dermatologists for more comprehensive PT, use of the thin-layer rapid use epicutaneous test is a simple screening tool that should be available to all allergy practices.

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INTRODUCTION

Contact dermatitis, which consists of 2 categories (allergic and irritant), is a rather common disease entity, comprising 6% to 10% of all visits to dermatology clinics.¹ Allergic contact dermatitis (ACD), although less frequent than irritant contact dermatitis, is associated with considerable morbidity and economic effect. The annual cost to society and industry from occupational skin disease alone has been estimated to be as high as \$1 billion per year. Of this cost, 90% is thought to be due to contact dermatitis, which causes time lost from work and often inappropriate job change. The end result is often a lower standard of living, discomfort, and disability from continued exposure to the substance.²

Skin patch testing (PT) has been recognized as the gold standard for diagnosis of ACD, which is a type IV (delayed) hypersensitivity reaction. Although PT is a relatively easy procedure to perform, its success rate depends on several

factors, such as appropriate level of suspicion for the diagnosis of ACD, an adequate threshold for PT, necessary experience to properly apply and interpret the results and to determine their relevance, and the ability to educate the patient about the condition.³ According to Jacob and Steele,⁴ a high index of suspicion for ACD can lead to appropriate testing, diagnosis, avoidance, and, eventually, cure. The thin-layer rapid use epicutaneous (TRUE) test contains 24 allergens that are responsible for 80% of ACD cases in some studies and 30% to 50% of cases in other studies. This test is the only commercial PT system available in the United States.¹ Although PT might be simple to apply, its reading and interpretation require training and expertise.⁵

Despite the fact that PT to detect ACD is recommended by the Accreditation Council for Graduate Medical Education as part of allergy fellowship training programs in the United States, PT is not universally performed in allergy training programs. We conducted a survey to evaluate the frequency of performing the test and also to identify and compare the perceptions of obstacles for performing the test among community allergists and directors of allergy fellowship training programs. We also evaluated the effect of previous training in performing PT among the program directors (PDs) and the community allergists.

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METHODS

We distributed 2 anonymous questionnaires, using a Web-based survey (SurveyMonkey), to 65 PDs across the United States and to 200 community allergists in the mid-Atlantic region. The respondents who completed the entire survey were included in the study. The PDs and community allergists were further categorized based on performing or not performing PT. In addition, the community allergists were categorized based on type of practice (solo and group). Comparisons between categories were made using the χ^2 test.

RESULTS

Twenty-two PDs and 43 allergists responded and completed the entire survey. Table 1 and Table 2 demonstrate the characteristics of the training PDs and the community allergists. Approximately 64% of responding PDs and 74% of responding community allergists perform PT. There was no significant difference between the number of PDs and community allergists who perform PT. Table 3 reveals the characteristics of PT in performers in each category and reveals that, compared with community allergists, PDs performed PT more frequently ($P < .05$); in both categories, whereas nurses and technicians were more likely to perform the test ($P < .05$), physicians were more likely to interpret the test ($P < .05$) and standard commercial material was used more commonly ($P < .05$). When comparing PDs with allergists, there was no difference with regard to the subgroup of physician who performed the test, the subgroup of physician who interpreted the test, or the type of material used.

The practice of choice for referral for PT was a dermatology clinic among PDs and other allergy practitioners (80% and 73%, respectively). The rate of willingness to attend a course dedicated to teaching PT was similar between the PDs and the community allergists (37% for both).

Regarding previous experience with PT, 68% of PDs and 42% of community allergists had prior training. When we

Table 1. Characteristics of the 22 Responding PDs^a

Characteristic	No. of PDs
Duration of program, y	
2	20
3	2
Total No. of fellows in training	
2–4	15
≥5	7
Average No. of rotating residents and students	
1–3	19
≥4	3
No. of full-time faculty members	
1–4	12
≥5	10
No. of part-time faculty members	
1–3	17
≥4	5

Abbreviation: PD, program director.

^a Of the 22 respondents, 14 (64%) performed patch testing.

Table 2. Characteristics of the 43 Responding Community Allergists^a

Characteristic	No. (%) of community allergists
Age, y	
30–49	22 (51)
≥50	21 (49)
Sex	
Female	10 (23)
Male	33 (77)
Time in practice, y	
<5	5 (12)
5–9	9 (21)
≥10	29 (67)
Type of practice	
Solo private	13 (30)
Group private	24 (56)
Other	6 (14)

^a Of the 43 respondents, 32 (74%) performed patch testing.

added the factor of performance of PT to previous training, the results revealed that 87% of PDs who perform PT had previous training, whereas 43% of the performers in the same category did not have previous training ($P < .05$). Among the community allergists who perform PT, our data revealed 83% and 56% for previous training and no training, respectively. These results show that those with previous training tended to perform the test more frequently; this was true among PDs and community allergists.

The results of this survey revealed that the perceived obstacles among the community allergists and PDs were similar regardless of whether they did or did not perform PT (Table 4). Among 43 respondent community allergists, 19 were in solo practice and 24 were in group private practice (44% and 56%, respectively). When the community allergists in solo practice were compared with those in group private practice (Table 5), the difference in perception was significant ($P < .01$). The main areas of difference were cost, lack of experience, and inadequate revenue generated. The allergists in solo practice identified cost and inadequate revenue generated, whereas the allergists in group private practice mentioned lack of experience as the main obstacle in performing PT.

DISCUSSION

The response rate to the survey was 34% and 22% among PDs and community allergists, respectively. Although a higher response would have rendered more validity to our results, nevertheless, we believe that certain conclusions are still valid. Based on our survey, PDs and community allergists perform PT at a surprisingly higher rate than we expected (64% and 74%, respectively). This finding may be attributed to the selection bias associated with surveys (ie, those who responded to the survey were more likely to perform the test and were, thus, more interested in participating in the survey). Another possible explanation is that allergists are becoming more interested in performing the

Table 3. Characteristics of Patch Tests as Related to Performers

Type of allergist	Total No. of tests	Frequency of performing the test ^a		Person who performed the test ^a		Person who interpreted the test ^a		Type of material ^a	
		Weekly or more	Monthly or less	Physician	Nurse or technician	Physician	Nurse	Standard commercial	Standard plus available add-on products
PDs	14	5 (36)	9 (64)	5 (36)	9 (64)	11 (79)	3 (21)	9 (64)	5 (36)
Community allergists	32	1 (3)	31 (97)	7 (22)	25 (78)	29 (91)	3 (9)	20 (62)	12 (38)

Abbreviation: PD, program director.

^a Data are given as number (percentage). Percentages are based on the totals for each row.

Table 4. Perceived Obstacles Among Respondents

Variable	Perceived obstacle ^a				
	Inadequate No. of patients	Cost	Lack of experience	Difficulty in logistics	Others
Those performing PT					
Community allergists	33	27	10	20	10
PDs	37	37	0	16	10
Those not performing PT					
Community allergists	29	33	18	12	8
PDs	38	19	30	0	13

Abbreviations: PD, program director; PT, patch testing.

^a Data are given as percentage of each group.

Table 5. Perceived Obstacles Among the Community Allergists in Solo and Group Practice^a

Perceived obstacle	Solo practice	Group private practice
Cost	50 ^b	17 ^b
Lack of experience	8 ^b	35 ^b
Inadequate revenue	33 ^b	4 ^b
Other	9	44

^a Data are given as percentage in each group.

^b $P < .01$.

test.⁶ There was no statistically significant difference between the number of PDs and community allergists in performing PT and in their perception of obstacles in performing PT. There was also no significant difference between allergists in solo and group practice in performing PT. However, when the perceived obstacle was compared between the 2 groups, we found that allergists in solo practice identified cost and inadequate revenue generated, whereas allergists in group private practice identified lack of experience, as the main obstacles to performing PT. This difference could be explained by the fact that cost and generation of revenue is more concerning for practitioners in solo practice in general.

Compared with community allergists, PDs performed PT more frequently; in both categories, whereas nurses and technicians were more likely to perform the test, physicians were more likely to interpret the test results and standard commer-

cial material was used more commonly. When comparing PDs with community allergists, there was no difference with regard to the subgroup of physician who performed the test, the subgroup of physician who interpreted the test, or the type of material used.

The PDs and the community allergists who performed the PT were more likely to have previous experience and training in PT, when compared with those who did not perform PT. This result is in concordance with the result of another survey conducted by Fonacier et al,⁶ which revealed that 57% of responding allergists performed PT but only infrequently. Those who considered PT useful tended to perform the test more frequently. The members of the American College of Allergy, Asthma and Immunology who were trained during the fellowship felt more confident than those without training.⁶

In our study, among PDs and community allergists, the practice of choice for referral for PT was a dermatology clinic, and an equal fraction were willing to attend a course dedicated to teaching PT to develop expertise to perform the test.

To our knowledge, there is no study that directly compares the rate of performance of PT among PDs and dermatologists in private practice, but there are some surveys in the field of dermatology regarding PT performance in general. The result of one survey in 1992 revealed that, whereas 27% of dermatologists, in general, do not perform PT at all, dermatologists

in academic settings perform the test more frequently.⁷ Another survey⁸ published 10 years later concluded that the proportion of dermatologists performing PT is increasing, especially since the TRUE test was available. Another survey in 2003 revealed that only 27% of programs had rotations dedicated to PT.⁹

In our center, after identification of possible obstacles in performing PT and attempting to overcome them, we were able to initiate and establish the procedure in the allergy clinic in the setting of high suspicion for ACD among our patient population.

We found the TRUE test to be easy to apply and the interpretation of the test, which was performed by the fellows in training, was confirmed by the attending physicians. After identifying the culprit agent, we educated patients with relevant positive test results about measures to avoid the contact allergen. We were, thus, able to help our patients overcome chronic dermatitis and saved them frequent visits and time. By using the appropriate billing code (code 955044), we were able to receive reimbursements to cover time and expenses. In our experience, we did not find cost, unavailability of instruments, and difficulty in logistics to be main problems in initiating the PT clinic. The procedure allowed us to offer a unique service to our patients, generated revenue, and provided fellows with an invaluable training experience.

We recommend that training in the application and interpretation of PT for the diagnosis of ACD be an integral part of the curriculum of allergy fellowship training programs and also be incorporated into the continuing medical education program of practicing allergists. Furthermore, whereas allergists may continue to rely on dermatologists for more comprehensive PT, use of the TRUE test is a simple screening tool that should be available to all allergy practices.

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