

An audit of the value of patch testing and its effect on quality of life

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We have assessed the value of patch testing from the patient's perspective and examined the impact of patch testing on their quality of life (QoL). 140 patients were recruited over 5 months. 2 questionnaires were designed to investigate the patient's views on patch testing. The 1st questionnaire was completed at the final visit to the clinic and the 2nd was posted 6 weeks later. The Dermatology Life Quality Index (DLQI) questionnaire was completed on both occasions. There was a significant improvement of the DLQI score in all patch-tested subjects ($P = 0.003$). Patients with involvement of the trunk had worse QoL. At the 4-day visit, 77 patients (55%) expressed the opinion that patch testing had been helpful. 6 weeks later, 71 patients replied. 47 patients were diagnosed as having allergic contact dermatitis: 87% of them found that patch testing had been useful, 91% were able to avoid the allergen(s) and 57% reported improvement/clearing in their skin condition. 58% of the 24 patients with negative results also found that patch testing had been beneficial. Overall, patient perception was that they understood verbal information (92%) better than written information (76%). Patch testing is beneficial to patients, leading to improved QoL. Patient perception was that they understood verbal advice better than written information.

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The prevalence of dermatitis among general community in the UK is estimated to be about 20% (1), with the majority being atopic dermatitis. Contact dermatitis accounts for 4–7% of dermatological consultations (2). It is often difficult to distinguish allergic contact dermatitis (ACD) from irritant contact dermatitis and endogenous dermatitis, clinically. Patch testing is therefore fundamental to the correct diagnosis of ACD (3). Early identification and subsequent avoidance of the contact allergen by the patient should reduce the duration and disability of the disease and its progression. It is, however, difficult to evaluate the usefulness of patch testing (3). In a retrospective audit of the effectiveness of patch testing, Lewis et al. (4) showed that patch testing is beneficial from the patient's perspective. We further questioned the benefits of patch testing for patients.

To assess the value of patch testing from the patient's perspective and to examine the impact of patch testing on the quality of life (QoL) of the participants, we conducted a prospective audit. In

addition, the effectiveness of advice given to patients in the clinic was assessed.

Patients and Methods

Statistical advice was sought on sample size, and 140 patients were recruited from the patch-test clinics in Aberdeen Royal Infirmary over 5 months. Based on history, patients were tested to the European standard series and to other relevant allergens selected from 15 specialized series containing an extensive range of allergens, as well as their own products. 2 questionnaires were designed to investigate the patient view on patch testing. The 1st questionnaire was completed at the 4-day reading visit to the patch-test clinic and the 2nd was posted 6 weeks later. Demographic information, including diagnosis, distribution of the eruption, job, duration of skin problem and their understanding of verbal and written information, was collected in the 1st questionnaire. In the 2nd questionnaire, patients were asked about the state of their skin condition

after patch testing, knowledge of their allergies and their views on the written and verbal advice given in the clinic. Changes in lifestyle, to avoid the relevant allergens demonstrated on patch testing, were also recorded. Dermatology Life Quality Index (DLQI) was measured by separate standard questionnaire on both occasions (5). All patch-test results were recorded, together with the exact times spent on counselling the patients; verbal advice and written patient information sheets (available from the British Contact Dermatitis Society) were also recorded.

Results

140 subjects agreed to take part (49 males and 91 females). The duration of symptoms ranged from 6 months to 10 years (median 1.5 years). 69 (49%) patients had ACD confirmed with positive patch tests to at least 1 allergen. The average time spent advising each patient on the results of patch testing was 10.8 min. At the 4-day visit, 77 (55%) patients felt that patch testing had been helpful, 49 (35%) patients had no particular opinion on the value of patch testing and 14 (10%) patients stated that it was not helpful.

Comparing verbal and written information given, 92% (65) of patients indicated that they understood the verbal information, while 76% (54) indicated understanding of the written information provided. 66% (47) found the quality of verbal information adequate, whereas 59% (42) found the written information adequate. 28% (19) patients responded that verbal advice had been inadequately explained, while 21% (15) indicated that written advice had been insufficient.

From the 2nd questionnaire administered 6 weeks after patch testing, 71 replies were received (51% response rate). 41 of the 47 (87%) patients with ACD who replied indicated that patch testing had been helpful. 14 of 24 (58%) patch-test-negative patients thought it was beneficial. In the ACD group, 91% of the patients were able to avoid their allergen(s) as far as possible or completely. 27 patients with ACD reported either improvement (53%) or clearing (4%) of their skin condition. 5 patients (11%) reported worsening of the skin eruption.

94 patients completed the DLQI questionnaire at the baseline patch-testing visit. We compared DLQI according to site of involvement (face, hands, feet/legs and trunk) and found that patients with dermatitis involving the trunk have significantly higher DLQI score (mean DLQI score of 9.8, analysed by Mann-Whitney *U*-test, $P=0.18$). 6 weeks later 65 patients returned the 2nd DLQI questionnaire. There was a statistically

significant improvement of the DLQI score (analysed by Wilcoxon's signed ranks test) in all patch-tested subjects [mean baseline = 8.9 (SD 6.4), mean at 6 weeks = 6.4 (SD 6.1), $P=0.003$], particularly for patients with positive patch tests [mean baseline = 9.3 (SD 5.7), mean at 6 weeks = 7.1 (SD 6.3), $P<0.021$]. Patients with negative patch-test results also showed improvement of DLQI score [mean baseline = 8.1 (SD 5.7), mean at 6 weeks = 5 (SD 5.6)], but this was not statistically significant.

Discussion

We have shown 3 important findings in this audit. Firstly, we confirmed that patch testing had been beneficial to most patients and that it had improved patient's QoL, particularly in those with positive allergens. Secondly, we identified that patients with dermatitis involving the trunk experience the highest impact on the QoL. Finally, patient's perception was that they understood and remembered verbal information better than written information.

Our finding of an average positive allergy detection rate of 49% is comparable with the results of an audit by Lewis et al. (53%) (4) and a study by Rietschel (6), who determined that the appropriate use of patch testing should yield a positive result in 30–65% of patch-tested subjects. Overall, we demonstrated a higher rate of benefit in our patients than the audit by Lewis et al. (4) in which postal questionnaires were sent 2–3 months after patch testing. Our results showed that 6 weeks after patch testing, 91% of those with ACD had managed to change their lifestyle to avoid allergens (compared with 56%, Lewis et al.) and indicated that patch testing had been beneficial (87% in our study versus 72%, Lewis et al.). The higher benefit reported in our study may be attributed to the shorter interval between patch testing and the completion of the 2nd questionnaire (6 weeks versus 2–3 months, Lewis et al.). Among those with negative results, more patients from our study (58% versus 32%, Lewis et al.) found patch testing helpful with improved QoL. This may have resulted from patients also receiving general advice on skin management, with subsequent reinforcement of the use of emollients and skin protection.

The majority of individuals with contact dermatitis continue to have chronic problems even after patch testing (7–9). Some allergens are more difficult to avoid. It is surprising, therefore, that 57% of patients in the study reported either improvement or clearing of their skin 6 weeks after patch testing. The remaining 43%

Table 1. Quality of life and skin conditions (11)

Diagnosis	Number of patients	Mean DLQI
Urticaria with DPU	26	12.9
Atopic eczema	81	12.5
Patch-test attendee (trunk involvement)*	40	9.8
Psoriasis	52	8.9
Allergic contact dermatitis*	69	8.6
Hair loss	70	8.3
Acne	111	7.5
Urticaria without DPU	47	7.5
Occupational contact dermatitis	70	6.6
Hailey-Hailey	66	6.1
Darier's	137	5.9
Behet's	325	5.7
Vitiligo	614	4.8
Solar keratosis	63	2.6

*Current study.

DPU = delayed pressure urticaria; DLQI = Dermatology Life Quality Index.

reported their dermatitis to be unchanged or worse. Wall & Gebauer's study found that 55% continued to have dermatitis (7), and an Australian study noted that only 30% were unchanged or worse (8). Nethercott et al. (9) reported the highest number of patients (63%) who were clear at the time of the follow-up.

Education plays an important role in the management of patients with ACD. There is scope for improvement in advising our patients (10 min may be too short). Although up to 28% of patients felt that the results were not explained in sufficient detail, patient's perception was that they understood verbal information better than written information. This stresses the importance of verbal advice. A specialist nurse going through results in detail has been shown to improve retention of information and compliance with the advice given (10).

QoL improves when seeing a dermatologist for any indication (5). We demonstrated that patients with the final diagnosis of ACD had a baseline mean DLQI score of 8.6 (SD 6) which is similar to that seen in psoriasis and hair loss (Table 1) (11). This confirms the findings of earlier studies related to QoL outcomes (12, 13).

More recently, however, Thomson et al. (14) found that patients confirmed as having ACD show a subsequent improvement in eczema severity and QoL following patch testing. They also reported that improvement in the QoL was not noted in patients with negative patch tests. Their findings differed from our results in that they identified no significant differences in the DLQI at baseline between body sites (14). One might expect QoL to be worse with dermatitis on the visible sites or on the hands where function is

impaired. Our study is the first to show that patients with dermatitis involving the trunk had greater impairment of QoL compared with other body sites (Table 1).

In summary, ACD has an appreciable impact on the QoL. Patients are able to adopt suitable avoidance behaviour following patch testing, leading to improved QoL. Patient's knowledge of the results is better recalled with verbal explanation.

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