

Reproducibility of Severity Rating for Atopic Dermatitis

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Sir,

Atopic dermatitis (AD) is a chronic skin disease that affects 5–20% of the paediatric population and 2–10% of adults (1–4). Assessment of the severity of AD is an important step in paediatric care and clinical trials (5, 6). The SCORing Atopic Dermatitis (SCORAD) system (7), introduced in 1993, is one of the best validated systems for such assessment (8–11), but it is time-consuming for routine clinical use. Recently, a tool for the assessment of the severity of a child's AD by the caregiver, the Self-Administered Eczema Area and Severity Index (SAEASI), has been developed (12). In a previous study the relationship between parental and dermatologist assessments of severity of AD in childhood has been determined (13).

The aim of this study was to evaluate whether different investigators, not involved in clinical paediatric care, provide similar results when translating the silhouette shading of body surface involvement (as used in SCORAD or SAEASI) into a score.

MATERIALS AND METHODS

Ninety-eight inpatients of the paediatric unit of a large dermatological hospital in Rome, Italy, with a diagnosis of AD, were enrolled in the study.

The severity of AD was evaluated in all children. SCORAD was performed by a paediatrician-dermatologist at hospital admission.

Within the first few days after admission the parents completed the SAEASI.

Based on the silhouette shading in the SAEASI and SCORAD, 3 independent investigators who had not seen the patients and with no experience in dermatological assessment assigned a numerical value from 0 to 100 to the area of AD lesions for the 4 body regions (i.e. head, trunk, upper and lower extremities).

The original formula used to obtain the SAEASI and SCORAD scores (12, 7).

A SCORAD score of less than 15 identified patients with mild AD, 15–40 moderate AD, and greater than 40 identified severe AD, in agreement with Kunz guidelines (8). The intraclass correlation coefficient (ICC) (14) was used for inter-rater agreement. An ICC >0.80 was considered acceptable.

All statistical analyses were performed using the software STATA 9.0 for Windows (15).

RESULTS

The study population ($n=98$; 60 females (61.2%)) had an age range of 6 months to 17 years (mean \pm standard deviation (SD) = 7.7 ± 5.07 ; median 8).

Children were affected by moderate ($n=60$; 61.2%), and severe ($n=38$; 38.8%) AD, with a range of SCORAD values of 15.2–70.3. The mean value was 38.8 (SD 13.03) and the median 36.1.

Both scoring systems were applied independently by 3 raters (one biologist, one psychologist and one fellow in internal medicine) at the end of the study. The SAEASI and SCORAD scores showed a similar pattern by gender and age. The inter-rater agreement on total SAEASI score was 0.86. Interclass correlation coefficients in the four body regions are reported in Table I. The inter-rater agreement for BSA on SCORAD ratings was 0.84. For each of the 4 body areas, ICC scores were >0.80. Subsequently a paediatrician evaluation was considered and the agreement among the 4 evaluators re-analysed with an ICC = 0.88.

Convergent validity between tools and a similar magnitude of correlation coefficients (Spearman's rho, r_s) for each area were observed (SAEASI and SCORAD total score, $r_s=0.71$, $p<0.001$; BSA scores, $r_s=0.68$, $p<0.001$; area of head, $r_s=0.61$; upper extremities, $r_s=0.61$; trunk, $r_s=0.59$; lower extremities, $r_s=0.70$; $p<0.001$).

DISCUSSION

There is good concordance between the 2 well-established AD severity assessment instruments.

SAEASI is useful where repeated measures by parents are required to monitor the disease. No specific training or health personnel are required to use the instrument. It can be used by caregivers to record the disease; dermatologists can thus monitor changes in AD without seeing the patient. SAEASI therefore

Table I. Intra-class correlation coefficient (ICC), standard error (SE), 95% confidence interval (95%CI), estimated reliability of n mean (r ; $n=3$) in total (overall) SAEASI score, and separately for SAEASI body surface area (BSA) and each of the 4 body regions ($n=98$ silhouette shadings; $n=3$ raters)

SAEASI	ICC	SE	95%CI	r^{\wedge}
Overall	0.86	0.04	0.79–0.93	0.94
BSA	0.84	0.04	0.76–0.92	0.94
Head	0.79	0.05	0.69–0.89	0.92
Upper extremities	0.86	0.04	0.79–0.93	0.95
Trunk	0.83	0.04	0.75–0.92	0.94
Legs	0.83	0.04	0.74–0.92	0.94

SAEASI: Self-Administered Eczema Area and Severity Index.

contributes to the empowerment of families with a child affected by AD.

The Italian version of SAEASI has proved to be well accepted (13), and it appears to be a reliable instrument for assessment of the severity of AD. The finding that the inter-rater agreement was so high, both in SAEASI and SCORAD, is relevant. There was evidence of agreement in the assessment of each body area by non-trained evaluators and the variability in inter-rater assessments did not depend on the extent of the disease or on the child's age (body seizure). The high agreement among raters and paediatrician who visited the child suggests that the scoring reflects the extent of skin involvement, and strengthens the idea that the tool could also be used by non-professionals.

In a busy clinical situation it is less time-consuming if the physician only has to shade in the body area affected by AD.

Other studies are necessary to assess the tools' potential in monitoring changes in AD during follow-up.

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