

CORRESPONDENCE

Confusing data on skin testing devices

To the Editor:

We have read the article by Demoly et al.¹ and find that for the following reasons it is likely to be more confusing than helpful to those interested in these matters:

The description of the Morrow Brown needle given by the authors is obsolete; the current model has a redesigned point that is now 1.6 mm in length, not 1 mm as stated in this article, and the point is triangular, not round as indicated in Fig. 1. It is thus unlikely that the data presented can be considered relevant to Morrow Brown needles currently in use. It should also be made clear to U. S. readers that the Phazet is no longer available here, and the Stallerpoint and Stallerkit devices have not been marketed in the United States.

The statistical tools applied by the authors appear confusing. The CVs (coefficient of variation) given in Table I are obviously not computed with use of the means and standard deviations given in that table. The mean in the table appears to represent the average wheal size across all subjects for the specified test. Each of the eight subjects was tested eight times, and the value shown is the mean of 64 observations. We surmise, since the article is not clear on this, that the CV for a given device is computed by (1) viewing the means of each of the subjects as an observation from that subject, (2) computing the mean of these eight observations, (3) computing the standard deviation of these eight observations, then (4) computing the CV. The CV is commonly used as a relative measure of variation, but is mainly useful when the magnitudes of the means differ greatly, which is not the case here. Since there was no between-subject difference found for five of these tests, the CV calculations, if used at all, could be computed from overall means and standard deviations used in Table I.

We note in particular that the Morrow Brown needle, ranked 9, actually has the *smallest* standard deviation (0.3) (Table I). If this is so, and not a misprint, it is hard to see how it could be rated last in reproducibility.

Apparently the authors rely heavily on the formula E^2/M^2 as a measure of relative difference: we question the validity of this. If small values of the quantity are supposed to indicate less variation, squaring the mean gives an advantage to the tests that produce the larger wheal sizes. This seems to confuse rather than to clarify the issue. Also in Table I is a column labeled "subject interaction," and a "subject effect" is mentioned in the discussion, but is never defined.

We also believe that comparative studies such as this, using histamine rather than allergens, are of limited utility because they fail to address some important questions, such as the effect of antigen carryover when pricklers are merely wiped rather than disposed of between tests, and the relative incidence of false-positive results.

The authors consider that all methods examined are likely to be satisfactory for routine clinical use, and we agree. Therefore the decision of the clinician to use one device

instead of another should be made on grounds of ease and speed of use, disposability, availability, and cost.

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REFERENCE

1. Demoly P, Bosquet J, Manderscheid J-C, Dreborg S, Dhivert H, Michel F-B. Precision of skin prick and puncture tests with nine methods. *J ALLERGY CLIN IMMUNOL* 1991;88:758-62.

Reply

To the Editor:

We thank Dr. H. Morrow Brown for his comments which raised two major points: the statistical evaluation of the data and the use of a remote Morrow Brown (MB) needle, which has twice been refined since the study was performed. The refinement of the needle was carried out after the publication of a study indicating the poor value of the former MB needle,¹ and we were not aware of further modification of the MB needle because, to our knowledge, no study has been published using this skin test device. It should be pointed out that Basomba et al.¹ found results similar to those presented in our paper.²

Dr. Morrow Brown was confused by our statistics, and we suggest the following clarifications. Tests used to assess the variability of data are usually based on variation coefficients ($CV\% = SD/\text{mean}$) whatever magnitude of the mean is. Because we used individual data to compute $CV\%$, it is obvious that dividing mean results and mean standard deviations presented in Table I will not give the same values as those obtained by using individual data. This is the simple reason why Dr. Morrow Brown did not find the same results as those presented in our article.

The standard deviations of the wheal sizes presented in Table I were related to the values obtained in all the eight patients and do not necessarily relate to the variability of the test within a single subject because no direct relationship exists between tests performed in eight subjects and tests performed in one individual.

We have used E^2/M^2 instead of E^2/M because numerator and denominator units have to be the same.

No reason suggests why the reproductibility of histamine skin tests may differ from that of allergen-induced skin test, and we had seen results identical to those presented in our article using the same devices and codeine phosphate.

Finally, we thank Dr. Morrow Brown for having sent us his new 1.6 mm pin needle. Because to our knowledge there is no study assessing the reproducibility of this new MB needle, we have performed a study similar to our article.²