## Appendix 1

**Proposed method for the evaluation of skin prick test data in clinical practice**

A simplified method for daily practice using the standard CA and CH used in the department.

##### Test procedure

* Use the device and methodology to which the personnel is acquainted
* Use the CA and CH normally used in the office.
* Document the DH (or AH)
* Document any shift in histamine mean wheal size over time
* Calculate the mean D or A per concentration per allergen and patient.
* Use the mean D or A for calculations.
* Train the personnel to perform proficiency tests using 20 histamine SPT on the forearms of 3-4 people until the precision is acceptable([1](#_ENREF_1)).

and either

* Perform at least duplicate tests with both histamine and allergen.
* The two tests should be similar, i.e. with a c.v. (s.d. \* 100/mean) less than 20 % computed on the D, i.e. 40 % computed on the basis of A, or easier, parallel tests should not differ more than ± 1 mm in D,

or, when testing small children

* Perform single tests
* Train the personnel at monthly intervals performing proficiency tests as above

The CA eliciting a wheal of the same size as that of DH or AH is calculated assuming the same b for A and H.

The threshold CA = []5 \* CA used. Use Excel or similar as shown below:

**Example: Calculation of the allergen concentration eliciting a wheal of the same size as that of histamine HCl 10 mg/ml, CH10. The allergen potency 10 Units is arbitrary** (should be changed to the unit used in the department, BU, ABU, HEP, IR , etc.). Active Excel file (link to be inserted).

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| **1** | **A** | **B** | **C** | **D** | **E** | **F** | **G** | **H** | **I** | **J** |
| 2 | **Pat.** | **Allergen** | **1st test occasion** | | |  | **2nd test occasion** | | | **Times change** |
| **3** | **DH** | **DA** | **A x unit** |  | **DH** | **DA** | **A x unit** |
| 4 | 1 | Birch | 5 | 8 | 0,95 |  | 6 | 4 | 75,94 | 79,63 |
| 5 | 1 | Timothy | 5 | 4 | 30,52 |  | 6 | 4 | 75,94 | 2,49 |

The formula inserted in cells E4 and I 4 “= Index(C4/D4;5)\*10” and in E 5 and I 5: “= Index(C5/D5;5)\*10”, resp.

See Excel file.

#### Abbreviations

|  |  |
| --- | --- |
| A | Area |
| AA | Mean wheal area obtained with the same allergen concentration in the same patient. |
| AH | Mean wheal area obtained with histamine reference in the same patient. |
| AH1 | Mean wheal area obtained with histamine 1 mg/ml in the same patient. |
| AH10 | Mean wheal area obtained with histamine 10 mg/ml in the same patient. |
| D | Diameter |
| DA | Mean wheal area obtained with the same allergen concentration in the same patient. |
| DH | Mean wheal diameter obtained with histamine in the same patient. |
| DH1 | Mean wheal diameter obtained with histamine 1 mg/ml in the same patient. |
| DH10 | Mean wheal diameter obtained with histamine 10 mg/ml in the same patient. |
| d..w. | Dry weight |
| CA | Concentration of allergen |
| CH | Concentration of histamine |
| drr | Dose response relationship |
| bA, bH | The slope of the allergen / histamine drr |
| a | The intercept of the drr |

#### Legend to Figure

Proposed single concentration method according to ***Appendix 1,* Clinical practice**

Figure 1 The normally used CA and CH should be tested. Provided duplicate tests are preformed, each substance and C should induce wheals of similar size, i.e. with a c.v. less than 20 % computed on the D, or easier, not differ more than ± 1 mm in diameter. The mean is used for calculations. The CA eliciting a DA or AA of the same size as DH10 or AH10 is calculated using the formula:

= []5\*CA used in the office

1. Proficiency testing: Skin prick test [Internet]. 2013 [cited 2013-02-22]. Available from: https://aaaai.confex.com/aaaai/2013/webprogramhandouts/Session1315.html .