Investigation on the Reproducibility of the Psychological Perspiration Test for Longer Period than 24 Hours in Healthy Volunteers

The reproducibility of any psychometric examination would be a special concern because of known adaptational phenomena. In the last JSCPT conference, we presented the reproducibility of the psychological perspiration (PP) test, a newly developed psychometric examination, for 24 hours in healthy volunteers. Following the last report, we investigated the reproducibility of the PP test for a longer period (about 1 week) in healthy volunteers.

Objectives
Investigation on the reproducibility of the psychological perspiration test for more than 24 hours in healthy volunteers

Methods
Twenty-two healthy young male volunteers from 20 to 27 years old (mean: 22 years old), who participated in the phase I study of a new drug or its screening test, were enrolled in this study. The subjects underwent 3 PP tests as a screening test and pre-treatment examination at mean intervals of 7.32 days (3-11 days) and 4.98 hours (3.78 - 6.17 hours). Further 3 tests were conducted thereafter at mean intervals of 15.33 hours (14.50 - 16.30 hours), 4.63 hours (4.42 - 5.08 hours) and seven days (all) as a part of the phase I study in 6 subjects who received placebo intravenously for 4 hours. At each test, the 6 subjects received 2 stimuli, which were mental arithmetic (subtracting number of one figure from two figures) and sudden inspiration to induce PP in supine position. Both kind of stimuli were applied twice at each time, then the results after the second stimulus was used for evaluation. The subjects' perspiration at the thenar was recorded by using Kenz-Perspiro® OSS-100 (Suzuken Co., Ltd.). The increased amount and peak level of the perspiration after loading each stimulus were calculated as indices of the perspiration response.

Results
In 22 subjects, the perspiration responses after both stimuli decreased in the second test after 1 week, and further decrease was observed in the third test performed at about 5 hours after the second test. Fourth test was performed during the placebo drug infusion in the 6 subjects, and slight increase of perspiration was observed. It still kept increasing at the fifth test, after the
drug infusion. One week after the fifth test in the 6 subjects, perspiration responses only returned to the same range of third test and no tendency of recovery was observed.

Discussion

In our former study, we observed adaptational phenomena of PP when the PP test was repeated within a short period (e.g. 1 hour). In this study, the lowering of perspiration was also observed after the second study which was performed 3 to 11 days after initial trial. The results suggest that the adaptational phenomena in the PP test is observed even though the interval between 2 tests is set as 1 week. In addition to this, the decreased perspiration response due to the adaptational phenomena did not recover in 1 week. Therefore, it is assumed that once decreased perspiration due to the adaptation might be stable for at least 1 week.

Fig. Psychological perspiration after applying stimuli