The Urticaria Control Test and Urticaria Activity Score correlate with quality of life in adult Japanese patients with chronic spontaneous urticaria

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Letter to the Editor

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Dear Editor,

Scoring systems to evaluate the activity and control of chronic spontaneous urticaria (CSU) have been validated mainly in European countries by the European Academy of Allergy and Clinical Immunology (EAACI)/Global Allergy and Asthma European Network (GA^{2}LEN).[1,2] However, a standard scoring system for evaluating symptoms in adult Japanese patients with CSU has not been verified. When considering "stepping up" therapeutic drugs, Japanese physicians tend to rely on subjective factors and clinical experience. A scoring system for the activity and control of CSU must also reflect quality of life (QoL) in Japanese patients with CSU.

EAACI/GA^{2}LEN recommends use of Urticaria Activity Score (UAS) 7 and the Urticaria Control Test (UCT) for assessment of the activity and control of CSU. The Urticaria Activity Score (UAS) is the sum of the number of urticaria and itching scores, and UAS7 (which is the total of 7 days of UAS) can evaluate CSU activity for 1 week prospectively and conveniently.[1–4] UCT can evaluate retrospectively the level of urticaria control over the past 4 weeks using four questionnaires.[5]

We examined the correlation among UAS7, UCT, and QoL in adult Japanese patients with CSU. Furthermore, we verified the correlation among the change of these scores after stepping up treatments.

The study protocol was approved by the Ethics Committee of Kobe University Graduate School of Medicine (Kobe, Japan). We assessed the symptoms and QoL of 38 adult CSU patients treated at Kobe University Hospital from April to November 2017. CSU was defined as the spontaneous idiopathic appearance of wheals, angioedema or both for >6 weeks. Backgrounds of patients were documented using medical records for age, sex, disease duration, complications of allergic diseases, and medications used. We employed UAS7$_{TD}$ with twice-daily documentation translated into Japanese.[6,7] The day was divided into "daytime" and "nighttime", the average value was taken as UAS of 1 day, and the total of 7 days was evaluated as UAS7$_{TD}$.[7] We used UCT translated into Japanese by Irifuku et al.[8] Scores from 0 to 4 points were given to answers on four questions, and ≥12 points regarded as "good control".[5] The Dermatology Life Quality Index (DLQI) is used for patients with skin diseases and has been shown to be useful for QoL assessment in CSU patients.[9] We used DLQI-J translated into Japanese.[10] We repeated the questionnaires on UAS7, UCT, and DLQI for our patients to evaluate these scores before and after therapeutic interventions. We evaluated the correlation among UAS7, UCT,

and DLQI scores, and the relevance of the changes in those scores. We included all data in analyses of patients who received surveys repeatedly. Data were analyzed with Spearman's rank correlation coefficient, which quantified the correlation of each score and the amount of change. Analyses were implemented by Prism v7 (GraphPad, San Diego, CA, USA).

Supplementary Table 1 shows the clinical characteristics of 38 CSU patients (13 males and 25 females; 17−79 (median, 43.5) years of age; CSU duration, 3 months to 30 years (median, 30.5 months)). The percentage of patients with CSU complicated with bronchial asthma, allergic rhinitis, food allergy, allergic conjunctivitis, or atopic dermatitis was 23.7%, 21.1%, 13.2%, 5.3%, and 2.6%, respectively. 97.4% of patients used antihistamines, 57.9% took H$_2$ receptor antagonists, 18.4% used leukotriene antagonists, and 23.7% took oral corticosteroids as the baseline drug. With regard to drugs used as add-on treatment to the baseline drug, 11.1% of cases used antihistamines, 11.1% took H$_2$ receptor antagonists, 22.2% used leukotriene antagonists, and 61.1% used omalizumab during our study.

UAS7 scores at each time point before and after treatment intervention showed high positive correlation with DLQI scores ($r_s = 0.7966$, $p < 0.0001$, n = 81) (Fig. 1a). UCT scores showed high inverse correlation with DLQI scores ($r_s = -0.8349$, $p < 0.0001$, n = 80) (Fig. 1b). There was significant correlation between UAS7 scores and UCT scores ($r_s = -0.7685$, $p < 0.0001$, n = 80) (Fig. 1c). In addition, most patients with UCT 0−7 exhibited UAS7>16, suggesting that patients with UCT 0−7 exhibit moderate-to-severe disease activity (Supplementary Table 2). The average UAS7 score of patients with DLQI 11−20 and 6−10 was 25.0 and 18.7, respectively. The average UCT score of patients with DLQI 11−20 and 6−10 was 4.9 and 6.8, respectively.

Changes in UAS7 scores after treatment intervention were positively correlated with changes in DLQI scores ($r_s = 0.6385$, $p < 0.0001$, n = 41) (Fig. 2a). Changes in UCT scores were correlated more strongly than changes in UAS7 scores or changes in DLQI scores ($r_s = -0.8542$, $p < 0.0001$, n = 41) (Fig. 2b). There was significant correlation between the changes in UAS7 scores and changes in UCT scores ($r_s = -0.7036$, $p < 0.0001$, n = 41) (Fig. 2c).

Our study provides evidence that the Japanese versions of UAS7 and UCT are good evaluation tools to reflect QoL in adult Japanese CSU patients. Itakura et al. reported that UCT and DLQI exhibited strong correlation in chronic urticaria using an online survey, but their study had limitations: the diagnosis was dependent on self-reporting and participants might not be limited to CSU.[11] Moreover, our study revealed that changes in UAS7 and UCT scores after
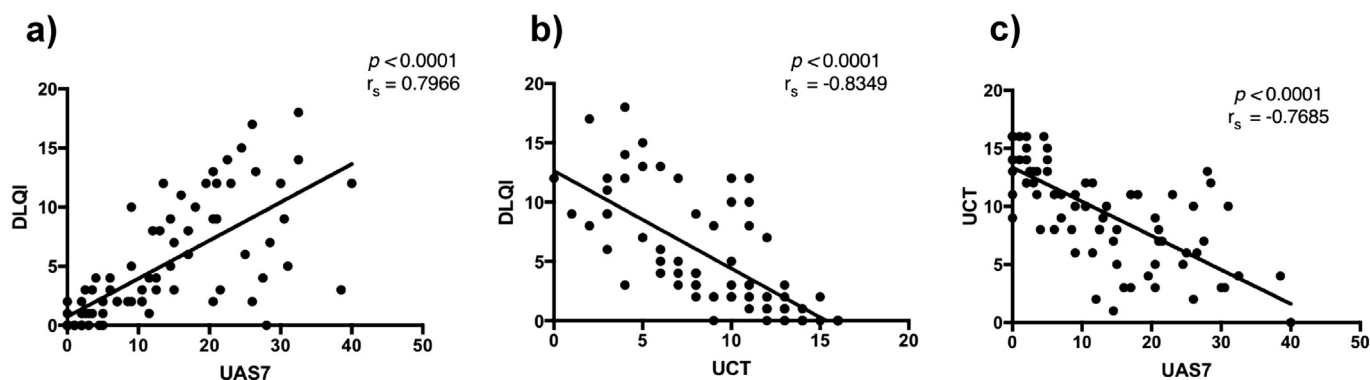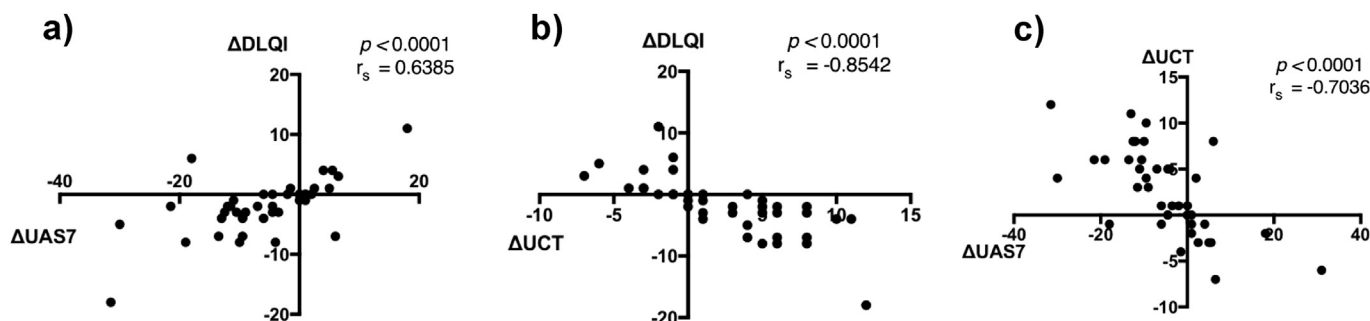
Fig. 1. (a) Correlation between UAS7 score and DLQI score in CSU patients (n = 81). (b) Correlation between UCT and DLQI (n = 80). (c) Correlation between UAS7 and UCT (n = 80). $p < 0.05$ was considered significant: Spearman's rank correlation coefficient.

Fig. 2. (a) Correlation of changes in UAS7 scores and changes in DLQI scores after treatment intervention (n = 41). (b) Correlation of changes in UCT scores and changes in DLQI scores after treatment intervention (n = 41). (c) Correlation of changes in UAS7 scores and changes in UCT scores after treatment intervention (n = 41). $p < 0.05$ was considered significant: Spearman's rank correlation coefficient. (Duration until evaluation after treatment intervention; 4–8 weeks).

treatment intervention also correlated with changes in QoL. That is, the change in severity and control of CSU due to treatment intervention correlated with the change in QoL. Notably, the sensitivity to QoL and changes in QoL was better for UCT than for UAS7. This may have been due to the QoL element being included in the UCT question item. We recommend UCT to assess the QoL of CSU due to its convenience in daily clinical practice and good sensitivity to therapeutic intervention. We also confirmed that the Japanese versions of UAS7 and UCT had a strong correlation. These data suggest that UCT can be substituted as a retrospective tool instead of UAS7, for which patient compliance is necessary during 1 week prospectively. This is the first report to examine the correlation between UAS7 and QoL, UAS7 and UCT in adult Japanese CSU patients, and indicates that UCT and UAS7 are useful tools for standardization of the assessment of these patients.

Acknowledgments

Appendix A. Supplementary data

Supplementary data to this article can be found online at https://doi.org/10.1016/j.alit.2018.11.003.

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