Validation of the Toronto Extremity Salvage Score in patients with malignant musculoskeletal tumor in the upper extremities

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Objectives: The Toronto Extremity Salvage Score (TESS) is a widely used disease-specific patient-completed questionnaire for the assessment of physical function in patients with musculoskeletal tumors; however, its reliability and validity have only been confirmed in a few studies. The aim of this study was to validate the Japanese version of the TESS in patients with musculoskeletal tumors in the upper extremity.

Methods: After developing a Japanese version of the TESS, the questionnaire was administered to 53 patients to examine its reliability and validity in comparison with the Musculoskeletal Tumor Society (MSTS) scoring system and Short Form-36 (SF-36).

Results: Test-retest reliability with intraclass correlation coefficient (0.93) and internal consistency with Cronbach's alpha (0.90) were excellent. Factor analysis showed that the construct structure consisted of 3-item clusters, and the Akaike Information Criterion network also demonstrated that the items could be divided into 3 domains according to their content. The TESS strongly correlated with the MSTS rating scale (r = 0.750; P < 0.001) and the SF-36 physical functioning scale (r = 0.684; P < 0.001). However, as expected, the TESS had low correlations with the SF-36 mental health and role-emotional subscales and the MSTS scoring system manual dexterity domain.

Conclusions: Our study suggests that the Japanese TESS is a reliable and valid instrument to measure patient-reported physical functioning in patients with upper extremity sarcoma. The Japanese TESS enables international comparisons of treatment results.

Keywords : Toronto Extremity Salvage Score, upper extremity, function

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