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Cross-cultural adaptation and validation of the Toronto Extremity Salvage Score for lower extremity aggressive benign tumors and sarcomas in Mexico

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Background: Current evidence suggests that aggressive benign tumors or sarcomas of the extremities can leave the patient with a degree of impairment and disability for activities of daily living, issue that can be the result of the disease itself or attributable to treatments. Evaluation of the functional status and quality of life of these oncologic patients is valuable. Toronto Extremity Salvage Score (TESS) is a self-report measure designed specifically to assess physical function in musculoskeletal tumor patients. There isn't any valid non-generic questionnaire in Mexico to estimate functional results of these patients.

Questions/Purposes: The objectives of this study were: 1. To develop cross-cultural adaptation and validation of the Toronto Extremity Salvage Score for lower extremity tumors in a Mexican Spanish-speaking population 2. Evaluate psychometric properties of the Mexican version of the Toronto Extremity Salvage Score. 3. Analyze the impact of limb salvage procedures or amputation related to physical function

Method: The process included two forward independent translations of the TESS questionnaire into target language, one of the translators was informed and the other was a naive translator; after a consensus a unique version went into a back translation by two translators, and an expert committee consolidated the versions for the final application. The adapted version was administered to 72 patients treated with limb salvage surgery or amputation for lower extremity tumors; they also completed the SF-36 health survey, and 29 patients completed a second TESS questionnaire. Psychometric properties were analyzed including internal consistency (evaluation of the Cronbach's alpha), test-retest reliability (intraclass correlation coefficient), and construct validity (Pearson correlation coefficient between adapted TESS and SF-36 questionnaire).

Results: The Toronto Extremity Salvage Score for lower limbs was translated and culturally adapted to Mexican Spanish. Internal consistency was high (Cronbach's alpha=0.882), satisfactory test-retest reliability (intraclass correlation coefficient 0.947 IC95% 0.889-0.972 (p=0.0001)) and good construct validity shown by a moderate correlation with SF-36 (Pearson correlation coefficient r=.791; Kolmogorov-Smirnov showed normal distribution of measurements).

Using non-parametric analysis according to Mann-Whitney U and Kruskal-Wallis were determined variables affecting the results in a negative way: type of resection, pain and use of external support.

Conclusions: The Mexican version of the Toronto Extremity Salvage Score is a valid, reliable and useful instrument; it can be applied in a Spanish-speaking Mexican population being treated for aggressive benign tumors or sarcomas of the lower extremity. Patients treated with a radical resection did not appear to have less physical function than patients treated with limb salvage surgery. Patients requiring use of some sort of brace or external support (cain or crutches) had lower functional results affecting their quality of life.

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