

ASCO Abstract

Health related quality of life and clinical data comprise a valid prognostic tool to aid in survival prediction in a subgroup of metastatic cancer patients.

Authors: C. Quinten¹, F. Martinelli¹, J. Vercauteren¹, E. Greimel², B. Reeve³, C. Cleeland⁴, M. Taphoorn⁵, J. Weis⁶, J. Schmucker-von Koch⁷, A. Bottomley¹

¹EORTC Headquarters, Brussels, Belgium; ²Medical University Graz, Graz, Austria; ³National Cancer Institute, NIH, Bethesda; ⁴M.D. Anderson Cancer Center, Houston; ⁵Department of Neurology, Medical Center Haaglanden/VU University Medical Center, The Hague/Amsterdam, Netherlands; ⁶Department of Psychooncology, University of Freiburg, Freiburg, Germany; ⁷University of Regensburg, Regensburg, Germany.

Background:

Health related quality of life (HRQOL) may provide added value alongside clinical data in predicting survival. The aim of this analysis was to construct a prognostic index (PI), including HRQOL and clinical data, to assess the accuracy of survival prognosis and to identify possible subgroups at increased risk of death in a cohort of patients with metastatic cancer.

Methods:

Baseline data were obtained from 17 closed European Organisation for Research and Treatment of Cancer (EORTC) randomized controlled trials in 7 cancer sites. A multivariate Cox regression model was constructed including clinical, socio-demographic and EORTC QLQ-C30 variables, that were retained as prognostic ($p < 0.05$) after stepwise regression. A quantitative PI, representing a weighted combination of the bootstrapped parameter estimates of each prognostic variable, was constructed. The C-index was used to evaluate predictive accuracy of the PI; a log-rank test to identify significant separation between low and high survival risk subgroups.

Results:

HRQOL and clinical data were collected at baseline from 2,410 metastatic cancer patients. The final multivariate model included three clinical variables [age, gender, WHO performance status (PS)] and three QLQ-C30 parameters [physical functioning (pf), pain (pa) and appetite loss (ap)] (all p 's < 0.05). The bootstrapped estimates were used to create the PI as follows: $PI = 0.164 * age - 0.239 * gender + 0.311 * PS + 0.007 * pf + 0.004 * pa + 0.005 * ap$. Incorporating the HRQOL variables in the PI increased the relative predictive accuracy by 8.3% compared to clinical variables alone. A significant difference (HR=1.82; CI=1.57-2.11; $p < 0.001$) in median survival (22 vs 11 months) in the studied data population was identified based on the PI.

Conclusion:

This PI may be useful, after further validation, by health care professionals in predicting survival and identification of subgroups at increased risk of death. A PI can be used in clinical research to define groups at increased risk of death or as a key stratification factor in the design of clinical trials. However, additional research and external validation is needed to strengthen our results.