Int J Radiat Oncol Biol Phys. 2010 Jul 15. [Epub ahead of print]

Scoring Systems to Estimate Intracerebral Control and Survival Rates of Patients Irradiated for Brain Metastases.

Rades D, Dziggel L, Haatanen T, Veninga T, Lohynska R, Dunst J, Schild SE.

Department of Radiation Oncology, University of Lübeck, Germany.

Abstract

PURPOSE: To create and validate scoring systems for intracerebral control (IC) and overall survival (OS) of patients irradiated for brain metastases. METHODS AND MATERIALS: In this study, 1,797 patients were randomly assigned to the test (n = 1,198) or the validation group (n = 599). Two scoring systems were developed, one for IC and another for OS. The scores included prognostic factors found significant on multivariate analyses. Age, performance status, extracerebral metastases, interval tumor diagnosis to RT, and number of brain metastases were associated with OS. Tumor type, performance status, interval, and number of brain metastases were associated with IC. The score for each factor was determined by dividing the 6-month IC or OS rate (given in percent) by 10. The total score represented the sum of the scores for each factor. The score groups of the test group were compared with the corresponding score groups of the validation group. RESULTS: In the test group, 6-month IC rates were 17% for 14-18 points, 49% for 19-23 points, and 77% for 24-27 points ($p < 0.0001$). IC rates in the validation group were 19%, 52%, and 77%, respectively ($p < 0.0001$). In the test group, 6-month OS rates were 9% for 15-19 points, 41% for 20-25 points, and 78% for 26-30 points ($p < 0.0001$). OS rates in the validation group were 7%, 39%, and 79%, respectively ($p < 0.0001$). CONCLUSIONS: Patients irradiated for brain metastases can be given scores to estimate OS and IC. IC and OS rates of the validation group were similar to the test group demonstrating the validity and reproducibility of both scores.

PMID: 20638188 [PubMed - as supplied by publisher]