Abstract:

BACKGROUND: We evaluated prognostic factors for survival in patients with four or more brain metastases in order to determine whether intense local treatment might be justified for some of them. If up to three brain metastases are present, surgical resection or radiosurgery are currently being considered in case of favorable prognostic factors.

PATIENTS AND METHODS: Retrospective intention-to-treat analysis of 113 patients who underwent whole-brain radiotherapy without surgical resection or radiosurgery at a single institution. Standard treatment was given with ten fractions of 3 Gy. Higher total doses were administered in 13% of patients. Recursive partitioning analysis (RPA) prognostic classes have been described by the Radiation Therapy Oncology Group (RTOG) in 1997 (class I: Karnofsky performance status (KPS) ≥ 70%, age 50 years, p = 0.05). Strong trends were found for KPS, extracranial metastases, control of the primary tumor, and breast primary tumor. Number of brain metastases, RPA class and treatment-related factors such as total dose or remission of brain metastases had no appreciable influence on survival (Figure 1). Multivariate analysis failed to identify any significant prognostic factor.

CONCLUSIONS: Patients with four or more brain metastases seem to represent a group with unfavorable prognosis where remission of brain
metastases or administration of more than 30 Gy were not associated with increased survival. The number of patients in RPA class I was too small to draw final conclusions. However, there was absolutely no survival difference between patients in class II (median survival 3.6 months) and III (median 4.2 months).