PURPOSE To evaluate whether reduced overall treatment time (OTT), i.e., administration of more than 5 fractions per week, or uncompensated treatment interruption resulting in increased OTT influences survival of patients treated with whole-brain radiotherapy (WBRT) for brain metastases. METHODS Retrospective multi-institutional intention-to-treat study including 233 patients treated with primary WBRT (prescribed dose 10 fractions of 3 Gy; no previous SRS or surgery) administered over 10-38 days. Four groups were studied: OTT 10-11 vs. 12 days, 13-15 or >15 days. RESULTS Fourteen patients (6%) failed to complete WBRT and received 3-9 fractions (median 7). Their median survival was 0.5 months as compared to 3 months in patients who completed WBRT. No significant impact of OTT on survival was found. Median survival was 1.5, 2.9, 3.0 and 3.1 months in the four groups mentioned above. CONCLUSIONS Compensation for unintended treatment interruption is generally recommended but might not always be feasible. Depending on histological tumour type or expected repopulation, prognostic factors and neurological status, it might be acceptable to complete an interrupted course of WBRT without compensation in selected patients. While survival might be largely independent from OTT, it should also be evaluated whether this parameter has any impact on quality of life and duration of palliation.