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doi:10.1016/j.ejca.2008.10.033
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Whole brain radiotherapy plus stereotactic radiosurgery (WBRT + SRS) versus surgery plus whole brain radiotherapy (OP + WBRT) for 1–3 brain metastases: Results of a matched pair analysis

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Received 25 July 2008; revised 30 September 2008; accepted 15

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October 2008. Available online 4 December 2008.


Abstract

This study is the first one to compare WBRT + SRS to OP + WBRT for 1–3 brain metastases. Survival (OS), intracerebral control (IC) and local control (LC) of the treated metastases were retrospectively evaluated in 52 patients undergoing WBRT + SRS and in 52 patients undergoing OP + WBRT. Both groups were matched for WBRT schedule, age, gender, performance status, tumour, number of brain metastases, extracerebral metastases, RPA class and interval from tumour diagnosis to WBRT. One-year OS was 56% after WBRT + SRS and 47% after OP + WBRT ($p = 0.034$). One-year IC was 66% and 50% ($p = 0.003$). One-year LC was 82% and 66% ($p = 0.006$). On multivariate analyses, it was found that improved OS was associated with younger age ($p = 0.044$), no extracerebral metastases ($p < 0.001$), RPA class 1 ($p < 0.001$) and longer interval from tumour diagnosis to WBRT ($p = 0.001$). IC was associated with younger age ($p = 0.002$) and longer interval ($p = 0.004$); WBRT + SRS achieved borderline significance ($p = 0.052$). Improved LC was associated with longer interval ($p = 0.017$); WBRT + SRS showed a trend ($p = 0.09$). WBRT + SRS appears at least as effective as OP + WBRT.

Keywords: Brain metastases; Stereotactic radiosurgery; Brain surgery; Treatment outcome

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