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an effective treatment of primary
brain metastases in terms of local
control and survival**

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CO-11. Frameless radiosurgery - an effective treatment of primary brain metastases in terms of local control and survival

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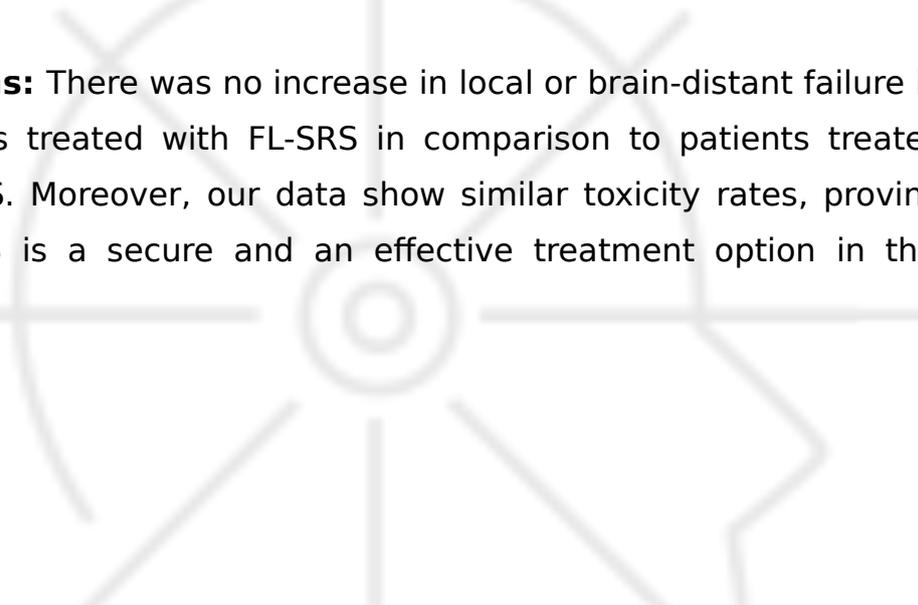
Objective: To assess the pattern of local and brain-distant failures and toxicity of primary brain metastases (p-BM) treated with frameless stereotactic radiosurgery (FL-SRS) and compare the results with available data on patients treated with frame-based radiosurgery (FB-SRS).

Materials and methods: Patients (p) were immobilised with a thermoplastic mask and an individualised dental mould. Radiation techniques were selected depending on location, shape and size of the lesion. Treatment was delivered with a VERSA-HD linac equipped with FFF, CBCT and HEXAPOD system. Circular collimators were used when the diameter of the BM was < 1 cm. PTV was defined as GTV plus 1.5-2 mm margin. The total dose was prescribed to 95% of the PTV in 1-5 fractions. The treatment planning was designed using either arch-therapy, IMRT or VMAT.

Results: Between Oct/14-April/17, 34 patients (67 p-BM) were treated. Primary tumor distribution was: NSLC 62%, breast cancer 12% and other 26%. A median of 2 p-BM were treated per patient with a median dose of 18.18 Gy. The median PTV volume was 1.1 cc. Fifty-two p-BM were supratentorial and 15 infratentorial. Eighty-four percent of p-BM showed clinical response (69% complete response, 15% partial response), 6% stable disease, 10% of p-BM were lost in

the follow-up. Local progression was observed in 2 p-BM (3%) and the local-failure free-survival (LFFS) was 100% at 1-year and 91% at 2-years. Distant brain failure was reported in 11 p (38%). The distant-failure free-survival (DFFS) was 92% and 64% at 1-year and 2-years, respectively. With a median follow up of 18 months, the median OS has not been reached, brain-PFS and OS at 1-year and 2-years were 88%-87% and 70%-50%, respectively. Eight p-BM (12%) developed signs of radionecrosis and 2 p were symptomatic requiring an active treatment. One patient showed chronic CNS symptoms in the absence of radionecrosis and WBRT. No patient died due to a neurological cause.

Conclusions: There was no increase in local or brain-distant failure in our patients treated with FL-SRS in comparison to patients treated with FB-SRS. Moreover, our data show similar toxicity rates, proving that FL-SRS is a secure and an effective treatment option in this scenario.



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