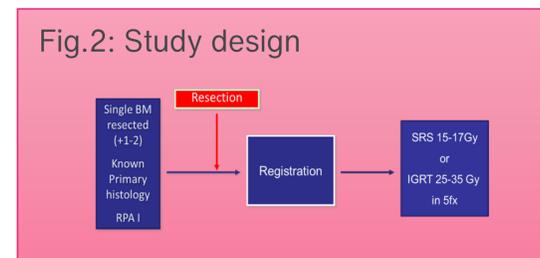


IOSI-RT 001: A phase II single-arm, multicenter Swiss prospective trial of stereotactic irradiation of the resection cavity in patients with brain metastases from solid tumors.

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Purpose

Brain metastases represent a major complication of solid tumors. Unfortunately they tend to rapidly recur after surgical removal. In this paper we report the preliminary results of a single-arm, multi-center, phase-II prospective trial of postoperative single or multiple fraction radiosurgery (SRT) for patients with 1-3 brain metastases (BM). Such a treatment was already studied, but we wanted to confirm its effectiveness in our patients population. Furthermore we tried to understand more as regards Quality of patients during and after treatment.

Materials and Methods

Patients ≥18 year-old with a maximum of 3 BM, of which one surgically resected, with WHO-PS 0-1, stable/decreasing corticosteroids, and stable systemic disease were eligible and included in the trial (Fig. 2). Based on BM treatment volume, a single fraction of 17-18 Gy or a fractionated SRS delivering 5 daily fractions of 5 to 7Gy was delivered to the resection cavity. We treated also up to 2 further BMs with doses according to guidelines. The planned follow up was of 52 weeks. Follow-up visits were planned at 2 weeks after SRT and every 3 months thereafter. Brain-MRI was performed at week-6 after SRS and thereafter in 3-monthly basis. Primary endpoint was local control (LC), while secondary endpoints were toxicity (CTCAE v4.03), quality of life (QOL) (EORTC QLQC30 and EORTC BN20), overall survival (OS), neurological progression (local+distant brain progression), and systemic progression.

Results

From 03.2014 to 12.2022, 56 eligible patients were enrolled at 6 Swiss centers (Table 1), and 48 were evaluable for the present analysis. The most common origin of BM was NSCLC (43%), melanoma (15%), breast (9%), and gastrointestinal (7%). Thirty-eight patients received fractionated treatment on the resection cavity, while single-fraction SRT was delivered in the 10 remaining patients. The V20Gy range for the healthy brain was 4.7-76.8 cc for the fractionated treatments. Acute toxicity was reported in 15 patients (31%), mostly grade 1 and 2. Among the reported serious adverse events (SAE), 3 were possibly related and 3 related to the treatment (3 seizures; 3 radio-necrosis). At 6 months, overall risk of neurological progression was observed in 50%, while the risk of systemic progression was observed in 30% of the patients (Fig 3, 4). The median OS at 1 year was 75% in the 48 evaluable patients (Fig 5). The neuropsychological status (MMSE) was stable (score: 29-30) during the follow-up for the evaluable patients (50% of the patients at 30 weeks and 30% at 54 weeks) (Fig.1). Quality of life forms are under evaluation.

Conclusion

This Swiss multicenter phase II prospective trial confirms that postoperative single or multiple fraction SRT after BM resection is a feasible and effective treatment for patients with 1-3 BM, associated with an acceptable toxicity profile. Quality of Life results will be furtherly evaluated and reported.

Accrual

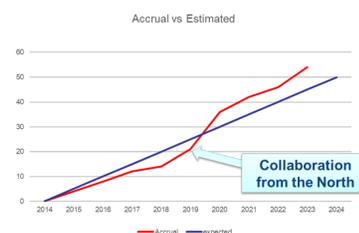


Table 1

Centre	Nr patients	Evaluable
Bellinzona	21	21
Basel	3	3
Bern	10	8
Winterthur	1	1
ZH Hirslanden	3	3
ZH USZ	17	12
TOTAL	56	48

