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ABSTRACT CITATION ID: NOAD147.064
INVESTIGATING LOCAL RECURRENCE IN SECONDARY BRAIN TUMOURS
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AIMS: Brain metastases result in considerable morbidity and mortality. Modern treatment strategies are increasingly omitting radiation therapy after surgical resection of these tumours. We investigated the rate of local recurrence in patients who had undergone surgery for brain metastasis in a single-institution study and compared it to the literature through a comprehensive meta-analysis. METHOD: Patients undergoing surgery for a brain metastasis were identified and their records reviewed. Data on treatment and outcome was extracted and analysed. A systematic-review and meta-analysis, registered in PROSPERO (CRD42023391637), was conducted following the PRISMA statement. RESULTS: The single-institution study comprised 358 cases, 40% (n=142) male and 60% (n=216) being female with a median age at surgery of 60 years (range 23-83 years). The most frequent primary cancer was lung cancer affecting 35% (n=126), followed by breast cancer (24%, n=87) and malignant melanoma (13%, n=47). Among the cases 142 underwent surgery without any adjuvant radiation. The median freedom from local recurrence at 12-months for this population was 38.3% (95% CI 13.4, 44.6). The meta-analysis encompassed three studies, with a total of 170 cases. Freedom from local recurrence at 12-months was found to be 42.4% (95% CI 34.9 - 50.1) following surgery alone. CONCLUSIONS: We define for the first time the rates of local recurrence following surgery alone for brain metastases with a large single-centre series and a meta-analysis. As radiation is increasingly being omitted in these cases, caution should be exercised, and more investigation of the factors associated with local recurrence after surgery and how they be modified are required.
METHOD: We reviewed patients who had a known brain tumour and the data was obtained from the Cancer Information System (CISCH). The data collection was approved by institutional review boards. We identified 7 patients who had TTFields therapy and 4 who had surgical treatment alone. For the survival analysis, 7 patients were censored. The data were collected from 8/2022 to 2/2023.

RESULTS: Among patients with TTFields therapy, the median OS was 22.2 months (95% CI, 17.3–42.6) and 17.3 months (95% CI, 12.6–21.9) for patients with surgery alone. The OS was significantly longer in patients with TTFields therapy compared to those with surgery alone (log-rank test, p=0.02).

CONCLUSIONS: TTFields therapy improves survival in GBM patients compared to surgery alone. Further studies are needed to assess the cost-effectiveness of TTFields therapy.

Abbreviations: GBM, glioblastoma multiforme; OS, overall survival; CISCH, Cancer Information System for Cancer in Patients with HIV/AIDS; SOC, standard of care.