

Treatment Outcome of Stereotactic Radiosurgery for Metastatic Brain Tumors from Squamous Cell Lung Cancers

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Introduction

- The proportion of lung squamous cell cancer (LSQC) in all the non-small cell carcinoma (NSCLC)s is about 25%–30%.
- In contrast to NSCLC, the incidence of brain metastasis (BM) has been found to be much **lower** in LSQC.
- We retrospectively investigated the patients with BM from LSQC managed by GKRS as the **primary treatment**.
- We focused to the **tumor control** after gamma knife radiosurgery(GKRS), and tried to find **prognostic factors related to the tumor control**.

Patients & Methods

- ◆ Jan, 2006 - Dec, 2022 (17 years)
- ◆ 134 patients with brain metastasis from pathologically confirmed as SCLC
- ◆ Mean Age:65.9 years (36 -85)
- ◆ Treated with Leksell Gamma Knife Perfexion® at CNUHH
- ◆ Retrospective study with images & medical records

Patients

- ◆ Among the 134 patients, 82 patients (61.2%) were clinically followed up with brain images.
- ◆ Age : 64.3 years (range, 36 to 85)
- ◆ Single : multiple = 46 : 36
- ◆ Synchronous : metachronous = 31 : 51
- ◆ Simultaneous systemic Tx. (68.3%) = 56 : 26

Results: tumors at GKRS

- ◆ Number of tumors: 187 in 82 patients
- ◆ Tumor volume: 0.007 cc – 64.48 cc
(Mean: 3.295 & Median:0.644)
- ◆ Prescription dose : 14 -24 Gy
(Mean: 20.0 & Median: 20.0)
- ◆ Two-fraction GKRS for 3 tumors in 3 patients

Results: overall tumor control

- ◆ 182 tumors in 77 patients
- ◆ **GKRS as the primary Tx.**
- ◆ **Single-session GKRS**
- ◆ Tumor control rate: 80.2 % (146 out of 182)
- ◆ Progression-free survival
(Mean: 182 days & Median:153 days)

Prognostic factors

- ◆ Tumor volume (less than 5cc vs. more) **P=0.018**
- ◆ Tumor volume (less than 10cc vs. more) **P=0.046**
- ◆ Prescription dose 20cc vs. lower **P=0.237**
- ◆ Metachronous vs. Synchronous **P=0.008**
- ◆ Simultaneous systemic Tx. Vs. not **P=0.001**

Results :patients

- ◆ Among the 82 patients, three patients (3.7%) alive.
- ◆ Overall survival after GKRS
mean: 417 days & median: 288 days

Conclusion

- **Although LSQC is known for its relatively poor treatment response and short survival, we should focus on managing BM arising from LSQC.**

-**In this investigation, favorable tumor control following GKRS may be attributed to the simultaneous administration of **systemic therapy** and the **synchronous BM** from LSQC.**