

# Clinical Outcomes of Contemporary Non-Small Cell Lung Cancer Patients Receiving Whole Brain Radiotherapy: Crystallizing the QUARTZ Outcomes

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## Abstract

### Introduction

Whole brain radiotherapy (WBRT) with corticosteroids as the standard of care for patients with brain metastases (BM) was established by trials demonstrating improved symptoms and overall survival (OS) in multiple primary tumor sites. However, the recent Quality of Life after Treatment for Brain Metastases (QUARTZ) trial showed no difference in OS or quality of life with the addition of WBRT (20Gy/5) to optimal supportive care (OSC) in non-small cell lung cancer (NSCLC). We investigated clinical outcomes in a comparable population of patients treated at our tertiary cancer centre.

### Methods

Demographic, symptom, disease and treatment-related data were abstracted for consecutive adult NSCLC patients receiving WBRT (01-12/2015). Prophylactic cranial irradiation, stereotactic and partial brain RT were excluded. Karnofsky Performance Status (KPS) was available in 82.7%. RTOG Neurologic Function Classification (RNFC) was retrospectively assigned. Descriptive statistics were calculated, and a two-proportion z-test was used to compare our population to QUARTZ (Q).

### Results

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For the 75 eligible patients, median age was 65 years (Q: 66), 48% were male (Q: 58%, p=0.NS), 55% had BM at initial diagnosis (Q: 66%, p=NS), and 56% had extracranial metastases (Q: 83%, p<0.001). 53% had adenocarcinoma (Q: 55%, p=NS), and 16% squamous cell carcinoma (Q: 20%, p=NS). 60% had KPS <70 (Q: 38%, p<0.001) with 92% having RPA class 2-3 (Q: 92%). Primary disease was controlled in 23% (Q: 33%, p=NS). Median time between BM diagnosis and WBRT start was 17 days (Q: 23). Median OS was 11.3 weeks (95% CI 6.1-16.5), compared to 9.2 weeks (95% CI 7.2-11.1) in QUARTZ.

## Conclusions

Even with poorer KPS and more uncontrolled primary disease, compared to QUARTZ, our cohort of NSCLC patients had a higher median OS. These encouraging findings support further investigation on prognostic factors in this patient group.

