

## NEWS BRIEFING 1

### PLENARY

#### 2 Phase III Study Of Prophylactic Cranial Irradiation (PCI) Versus Observation In Patients With Stage III Non-small Cell Lung Cancer (NSCLC): Neurocognitive And Quality Of Life (QOL) Analysis of RTOG 0214

B. Movsas<sup>1</sup>, K. Bae<sup>2</sup>, C. Meyers<sup>3</sup>, E. Gore<sup>4</sup>, J. Bonner<sup>5</sup>, A. Sun<sup>6</sup>, S. Schild<sup>7</sup>, L. E. Gaspar<sup>8</sup>, J. Bogart<sup>9</sup>, H. Choy<sup>10</sup>

<sup>1</sup>Henry Ford Hospital, Detroit, MI, <sup>2</sup>Radiation Therapy Oncology Group, Philadelphia, PA, <sup>3</sup>MD Anderson Cancer Center, Houston, TX, <sup>4</sup>Medical College of Wisconsin, Milwaukee, WI, <sup>5</sup>University of Alabama, Birmingham, AL, <sup>6</sup>Ontario Cancer Institute, Toronto, ON, Canada, <sup>7</sup>Mayo Clinic, Scottsdale, AZ, <sup>8</sup>University of Colorado at Denver, Aurora, CO, <sup>9</sup>SUNY Upstate Medical University, Syracuse, NY, <sup>10</sup>UT Southwestern Medical Center at Dallas, Dallas, TX

**Purpose/Objective(s):** There are scant data from randomized trials regarding the effects of PCI on neurocognitive function (NF) and QOL. The primary endpoint of RTOG 0214 showed no overall survival (OS) benefit for PCI in stage III NSCLC. This analysis focuses on the secondary objectives to determine the impact of PCI on the incidence of central nervous system metastases (CNS mets), NF & QOL.

**Materials/Methods:** Patients (pts) with Stage III NSCLC who completed definitive therapy without progression were eligible. Pts were randomized to PCI (30Gy at 2Gy/fraction qday) or observation. Mini-Mental Status Exam (MMSE), Activities of Daily Living Scale (ADLS) & Hopkins Verbal Learning Test (HVLT) were used to assess NF. EORTC QLQC30 & QLQBN20 were used to assess QOL. The Kaplan-Meier method with the log rank test was used for OS & disease free survival (DFS). The logistic regression model was used for the incidence of CNS mets. P-values from T-test adjusted by Hommel's stagewise rejective procedure were reported for NF & QOL tools. The cutoff of neurologic deterioration evaluated by MMSE & HVLT was calculated using reliable change index at 1 yr from baseline. For QOL, a 10 point (of 100) change was considered clinically relevant.

**Results:** This study opened in Sept 2002 & closed due to slow accrual in Aug 2007. Total accrual was 356 pts (of the targeted 1058), of whom 340 were eligible. 1 yr OS (75.6% vs. 76.9%, p=0.86) & 1 yr DFS (56.4% vs. 51.2%, p=0.11) for PCI vs. observation, respectively, were not significantly different. However, the incidence of CNS mets at 1 year was 7.7% vs.18% for PCI vs. observation (p=0.004). There were no significant differences at 1 yr between the two arms in any component of the EORTC QLQC30 or QLQBN20 (all adjusted p-values >0.05), though a trend for greater decline in pt-reported cognitive functioning with PCI was noted. There were no differences in MMSE (p=0.60) or ADLS (p=0.88). However, for HVLT, there was greater decline in immediate recall (p=0.03) & delayed recall (p=0.008) in the PCI arm at 1 yr. No clear differences at 1 yr emerged in NF or QOL between pts ≤60 or >60 yrs on either arm (all adjusted p-values >0.05). These results were the same when pts with & without CNS mets were compared.

**Conclusions:** PCI in stage III NSCLC significantly decreases the risk of CNS mets, without significant differences in OS or DFS. There were no significant differences in global cognitive function (on MMSE) or QOL following PCI, but there was a significant decline in memory (on HVLT). This study provides prospective data regarding the relative benefits and risks of PCI in this setting & the need to use sensitive cognitive assessments.

Supported by grant numbers (RTOG U10 CA21661, CCOP U10 CA37422) from the NCI

Author Disclosure: B. Movsas, None; K. Bae, None; C. Meyers, None; E. Gore, None; J. Bonner, None; A. Sun, None; S. Schild, None; L.E. Gaspar, None; J. Bogart, None; H. Choy, None.