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**Purpose/Objective(s):** To improve treatment personalization of patients irradiated for metastatic spinal cord compression (MSCC), a score predicting post-treatment ambulatory status after radiotherapy (RT) alone (without surgery) was presented in 2008. Since then, upfront decompressive surgery has become more popular, which may decrease the predictive value of this score. A new scoring tool may be helpful.

**Materials/Methods:** Data of 283 patients treated with RT alone for MSCC in three prospective trials since 2010 were re-evaluated. Dose-fractionation of RT and 12 factors were analyzed including age ( $\leq 67$  vs  $> 67$  years), gender, tumor type (breast ca. vs prostate ca. vs myeloma/lymphoma vs lung ca. vs others), interval from tumor diagnosis to MSCC ( $\leq 6$  vs  $> 6$  months), number of affected vertebrae (1-2 vs  $\geq 3$ ), further bone lesions (no vs yes), visceral metastases (no vs yes), time developing motor deficits ( $\leq 7$  vs  $> 7$  days), pre-RT ambulatory status (ambulatory without aid vs ambulatory with aid vs not ambulatory), performance score (ECOG-PS 1-2 vs 3-4), sensory deficits (no vs yes), and sphincter dysfunction (no vs yes). For each factor that achieved significance in the multivariate analysis (logistic regression model) after backward regression modelling, scoring points were calculated by dividing the post-RT ambulatory rates (in %) by 10. The scoring points of these factors were added for each patient. The new score was compared to the previous tool for prediction (positive predictive value, PPV) of ambulatory and non-ambulatory status after RT.

**Results:** In the multivariate analysis, primary tumor type ( $p=0.010$ ), sensory deficits ( $p=0.002$ ), sphincter dysfunction ( $p=0.017$ ), pre-RT ambulatory status ( $p<0.001$ ) and ECOG-PS ( $p<0.001$ ) were significant; a trend was found for the time developing motor deficits ( $p=0.054$ ). Five of these factors were included in the score and available for 278 patients. ECOG-PS was not included, since ambulatory status and ECOG-PS were confounding variables. For internal validation, bootstrapping with 1000 replications was used. Corrected C-statistic accounting for overfitting was 0.91, which demonstrated good predictive performance of the model. Based on post-RT ambulatory rates, three prognostic groups (25-29, 30-38 and 39-45 points) were designed with ambulatory rates of 11% (5/44), 64% (49/77) and 97% (152/157), respectively. Rates of local control of MSCC were 100%, 82% and 94% at 1 year, and 100%, 82% and 87% at 2 years. Survival rates were 20%, 21% and 55% at 1 year, and 13%, 12% and 39% at 2 years. PPVs of the new score to predict ambulatory and non-ambulatory status were 97% and 89% vs 98% and 79% when using the previous score.

**Conclusion:** The new score appeared more precise than the previous one in predicting non-ambulatory status after RT. Depending on survival prognosis, patients with  $\leq 38$  points likely benefit from upfront surgery. Since patients of the 39-45 points group had very high rates of post-RT ambulatory status and local control, they may not require surgery.

Author Disclosure: D. Rades: Research Grant; European Union (Interreg). Honoraria; Elsevier. A. Al-Salool: None. F. Cremers: None. C. Staackmann: None. J. Cacicido: None. D. Lomidze: None. B. Segedin: None. B. Groselj: None. N. Jankrashvili: None. A.J. Conde Moreno: None. R. Ciervide: None. C. Kristiansen: None. S.E. Schild: Research Grant; Alliance. Honoraria; UpToDate. Travel Expenses; Alliance.; NCCN guideline panel on non-small cell lung cancer. reviews NCI sponsored cooperative lung cancer trials; NCI thoracic malignancy steering committee.

## 2200

### The Impact of COVID-19 Pandemic among Cancer Patients

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**Purpose/Objective(s):** Clinical visits play an important role in disease management among cancer patients. The Covid-19 pandemic has hindered patients from seeking care and has changed treatment recommendations. We evaluated how the Covid-19 pandemic affected patients' health outcomes, related to the changing choice of treatment, and the association with demographic variables.

**Materials/Methods:** 17,062 cancer patients who received routine care at our institution between January 1, 2019 and March 31, 2021 were studied. As the Covid-19 outbreak was declared to be a public health emergency

within the United States on January 31, 2020, a binary Covid variable is defined as pre- or post-Covid based on whether the cancer was diagnosed prior to/on this date or after this date and treatment variable as radiation, other or no therapy being given. Age within the pre- and post-Covid cohorts was compared via two-sample t-test and the association between gender, partnership status, treatment, and Covid was assessed via chi-squared tests. The relationship between time from the date of diagnosis to death (the primary outcome), and Covid, adjusted for covariates (age, gender, partnership status, and treatment) was evaluated via the Cox proportional hazards (Cox PH) model. The impact of Covid on the treatment effect to overall survival was further assessed by including interactions between Covid and treatment.

**Results:** Among 17,062 cancer patients, 11,477 (67.3%) and 5,585 (32.7%) were diagnosed within pre- and post-Covid cohorts. Age was found to be different between the pre- and post-Covid (mean $\pm$ SD: 64.6 $\pm$ 15.1 vs 63.7 $\pm$ 15.7;  $p<0.001$ ). Gender, partnership status, and treatment were also found to be associated with Covid (all  $p<0.002$ ); while a lower percentage of patients received radiation therapy within the post-Covid (26.6%) than the pre-Covid (34.7%), a greater percentage received other therapy within the post-Covid (60.7%) than the pre-Covid (51.7%). Both Covid cohorts included more females (51.3% pre vs 53.8% post) and partnered patients (62.3% pre vs 61.5% post). All covariates, including the interaction term, in the Cox PH model were significant predictors of overall survival, with older, non-partnered, male, post-Covid, and no therapy patient having a greater hazard to death (all  $p<0.007$ ). Patients within the post-Covid had a greater hazard to death regardless of the given treatment, compared to the pre-Covid (Hazard Ratio: 1.18, 1.09, 2.35 for radiation, other and no therapy).

**Conclusion:** Covid-19 impacts patient care in multiple aspects. This impact is associated with age, gender and partnership status. Treatment choices also differed between patients who had a cancer diagnosis within pre- vs post-Covid cohorts. With different impact of Covid-19 on the treatment effect to overall survival, patients within the post-Covid had a greater hazard to death regardless of the given treatment. Further study is needed to better understand these observations.

Author Disclosure: F. Chu: Postdoctoral Fellow; Indiana University School of Medicine. A. Raldow: Research Grant; Viewray. Honoraria; Varian Medical Systems, Clarity PSO/RO-ILS RO-HAC. Consultant; Intelligent Automation, Inc., Clarity PSO/RO-ILS RO-HAC, Rectal Cancer Panel Member, Viewray. In-kind Donation; Clarity PSO/RO-ILS RO-HAC; NCCN EHR Advisory Group. D. Ruan: Research Grant; Varian.

## 2201

### Utilizing a Paper Simulation to Evaluate Scheduling Workflow

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**Purpose/Objective(s):** Increased demand for Gamma Knife (GK) radiosurgery treatment necessitated the installation of a second treatment machine to continue providing lifesaving treatment in a timely manner. The addition of a second machine brought with it the potential to double treatment volume, but the department was unable to allocate additional pre and post procedural space. Workflow and scheduling of patients was evaluated to ensure streamlined operations during the rollout of the additional