3 (13.6%), 3 (13.6%), 2 (9.1%), 6 (27.3%), 19 (86.4%) and 5 (22.7%) at baseline and 10 (45.5%), 3 (13.6%), 1 (4.5%), 4 (18.2%), 7 (31.8%), 17 (77.3%) and 7 (31.8%) at end of RT, respectively. None of the 7 domain teams' T-scores changed significantly at end of RT (Paired t-test). Pain intensity evaluated by NRS increased significantly (mean 0.77 vs 1.95, P=0.012, paired t-test). [Office1]You can remove this as needed for space saving **Conclusion:** This preliminary study demonstrated that despite the increased pain, thoracic RT did not significantly affect the quality-of-life in lung cancer patients. **Keywords:** lung cancer, thoracic radiation therapy, patient-reported outcomes

OA02.02
Development of Machine Learning Model to Estimate Overall Survival in Patients with Advanced NSCLC and ECOG-PS > 1

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Introduction: An accurate prognosis of patients (pts) with metastatic non-small cell lung cancer (mNSCLC) is crucial for treatment planning, early palliative care, quality of life improvement, and better resource allocation. Thus, our goal is to find a model to predict the 90-day survival rate of mNSCLC pts with ECOG-PS > 1. **Methods:** We collected 106 pts diagnosed with histologically proven, treatment-naive, mNSCLC (TNM 8th ed.) in a prospective, single-center, cohort study (Nov/17 – Jan/21). The 55 studied baseline features comprised the following information: demography, histology, metastatic sites, presence of EGFR activating mutations; nutritional status and body composition; medical history, smoking status, PS (ECOG and Karnofsky scales); symptoms and Edmonton Symptom Assessment System (ESAS); strong opioid use and oxygen supplementation; global quality of life score (EORTC QLQ C30), palliative scores (PPS and PaP), and laboratory values. We randomly split patients 100 times into different versions of training (n = 60), test (n = 26), and validation (n = 20) groups. We used the synthetic minority oversampling technique to balance the training groups artificially to improve the models' accuracy. We selected five sets of features associated with overall survival ≤ 90 days by analyzing each version of training and test groups through five feature selection models: Random Forest (RF), Extreme Gradient Boosting (XGB), Analysis of Variance (ANOVA) F-Score, Recursive Feature Elimination with Cross-Validation fitted with a Support Vector Machine (RFECV), and L1-penalized Cox regression. For classification, we used all 100 training and test groups to fit five machine learning models: RF, K-next-neighbors (KNN), XGB, linear regressor (LR), and a Voting Classifier (Ensemble) fed by the other models' predictions. We assessed the performance of the feature selection method and classification model combinations by the mean C-statistic of the prediction of the 100 validation groups. We considered a p-value threshold of 0.05 as statistically significant. **Results:** Of 106 pts, the median (interquartile range [IQR]) age was 66 y.o. (59-71), 45% were male, 65% were Caucasian, and 84% smokers (41 p-y [20-60]). We detected EGFR activating mutations in seven pts (7%). Median overall survival was 64 d (29-180), and 60 pts (56%) lived at least 90 d. We used the following features: PaP score, Karnofsky performance scale, oxygen supplementation, strong opioid need, symptoms (constipation, dry mouth, and mMRC scale), physical functioning, BMI, 6-month weight loss, hematocrit, neutrophil and leukocyte count, visceral, and subcutaneous adipose tissue content. All combinations of feature selection and classification showed statistically significant results (p-values ranged from 0.0025 to 0.0425), with mean C-statistic ranging from 0.6991 to 0.8097. The best-performing combination was the XGB feature selection and Ensemble classification (C-statistic 0.80965, p-value 0.0025). **Conclusion:** Machine learning-assisted survival assessment shows potential benefits in prognostic evaluation of mNSCLC. The pragmatic approach to feature selection identified poorer patient performance status, higher tumor-associated inflammation markers, and cachexia as negative prognostic indicators. Model adjustments with larger data sets and external validation are necessary to improve our model's accuracy before its use in the clinical setting. **Keywords:** Artificial Intelligence, Palliative care, Decision Support Techniques

OA02.03
Medical Assistance in Dying (MAiD) in Patients With Lung Cancer

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Introduction: On June 17th 2016, legislation was introduced in Canada allowing people with a "grievous and irremediable" medical condition access to an assisted death. Cancer accounts for 60-65% of MAiD deaths. Lung cancer, as the most common cause of cancer death (26% of all cancer deaths), is expected to make up a large proportion of MAiD cases. Prior studies suggest most patients are engaged with palliative care services leading up to MAiD, however involvement of oncology specialists and use of systemic and radiation therapy is unknown. The field of lung cancer has advanced significantly in recent years, with emphasis on immunotherapy and targeted therapy, making treatment both more effective and more tolerable. Oncologists are in a key position to provide patients with adequate information on their treatment options during the process of making an informed decision about MAiD. We performed a review of all patients with lung cancer who underwent MAiD at our centre to identify the demographic and treatment factors in this population and identify any gaps in our current system of care delivery. **Methods:** A review was completed of all patients with cancer referred to the Ottawa Hospital MAiD program from April 1 2019 – November 30 2020. This program provides the majority of MAiD services in the Champlain Local Health Integration Network, covering a population of 1.3 million people. Cases were filtered to identify those with lung cancer as the condition leading to MAiD request. Baseline demographics, diagnostic information, and treatment details were collected by retrospective review. **Results:** During the study period, 172 patients with cancer underwent MAiD. Of these, 29 (17%) had lung cancer, comprising our final study population. Median time from diagnosis to death was 20.4 weeks (range 3 – 421 weeks). Median age at diagnosis was 72, 59% female/41% male. Most patients had non-small cell lung cancer [adenocarcinoma 18(62%) / squamous cell carcinoma 4(14%) / NSCLC not otherwise specified 2(7%)], with only 1 case of small cell carcinoma. Four patients had a clinical diagnosis of lung cancer without a confirmatory biopsy. Twenty-five (86%) patients were evaluated by a medical oncologist. 12(41%) received at least 1 line of systemic therapy, and 19(66%) received radiotherapy. In 8 patients with NSCLC and PDL1>=50%, 4 (50%) received immunotherapy. Reasons for not receiving immunotherapy included poor performance status, patient decision, and lack of medical oncology consultation. Among patients with adenocarcinoma, 4 had an oncogenic driver mutation, and all received targeted therapy at some point in their disease course. Sixteen (55%) patients had a documented discussion with their oncologist regarding the transition to best supportive care prior to MAiD. **Conclusion:** Patients with lung cancer make up a smaller proportion of cancer-associated MAiD cases compared to population lung cancer death rates. An especially low rate of SCLC was seen. Most patients were assessed by an oncology specialist, though less than half received systemic therapy. Given the growing number of efficacious and well-tolerated treatment options in lung cancer, consultation with an oncologist may be reasonable to