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Title: Early versus late pulmonary rehabilitation (PR) following treatment for inoperable nonsmall cell lung cancer (NSCLC)

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Body: BACKGROUND: COPD is a frequent co-morbidity among patients with NSCLC that may profoundly impact cancer treatment outcomes. PR benefits and timing in this setting are unclear. PURPOSE: To compare the effects of early and late PR following cancer therapy on exercise capacity, COPD acute exacerbations (AECOPDs), COPD-related hospital admission rates, and HRQoL endpoints among patients with COPD and inoperable NSCLC. METHODS: Patients with Gold Stage II-IV COPD were referred to the outpatient PR clinic for management of chronic dyspnea and fatigue following chemoradiation therapy for NSCLC. Patients were grouped into early (< 30 days post NSCLC therapy) and late (> 31 days) time points and longitudinally studied. Baseline assessments of exercise capacity, HRQoL, dyspnea and fatigue were used to develop a 12-week, individualized PR program that included thrice weekly high intensity strength and aerobic training plus weekly educational sessions. RESULTS: Forty-nine early and 78 late patients completed PR. AECOPD rates were similar (2.93 early PR, versus 3.27 late PR, p =0.12), however, fewer hospital admissions for AECOPD were seen in the early group (17% versus 38%. p < 0.05). The early group also showed greater increases in VO₂peak, (+0.28 L/min versus +0.11 L/min, P < 0.01), six minute walk distance (+103.5 meters versus +54.3 meters, P < 0.001), and breathlessness (Borg score -4.1 versus -1.0 [P < 0.001]). Total and component Chronic Respiratory Questionnaire scores were greater among the early group (p < 0.02). CONCLUSIONS: PR post NSCLC therapy offers significant benefits with greater improvements and fewer AECOPD-related hospitalizations following early PR.