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**Postdiagnosis smoking cessation and risk of cancer progression and mortality, a multicancer prospective study**

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**Background:** Around 80% and 20% of deaths from lung and kidney cancers are attributable to smoking. While many patients with smoking-related cancers are active smokers at diagnosis, there is limited evidence on whether these patients could still benefit from smoking cessation after diagnosis.

**Aim:** To determine whether quitting smoking after the diagnosis of lung and kidney cancers affects the risk of disease progression and mortality.

**Methods:** This multicancer prospective cohort study recruited 517 smoker patients with stage IA-IIIa non-small cell lung cancer and 212 smoker patients with clear cell renal cell carcinoma, between 2007 and 2016 from two referral centres in Moscow, Russia, and followed them annually through 2020. Using time-dependent Cox proportional hazards and Fine-Gray competing-risks regression models, we compared overall survival, progression-free survival, and cancer-specific mortality among quitters vs. continued smokers with lung and kidney cancers.

**Results:** During an average 7 years of follow-up, 327 cases (63%) of lung cancer death, and 100 cases (47%) of kidney cancer death were recorded. The adjusted probability of 5-year overall survival was higher among smoking quitters than continued smokers (lung cancer: 61% vs. 49%,  $p=0.001$ ; kidney cancer: 88% vs. 73%,  $p=0.009$ ). The adjusted median progression-free survival time was 21.6 months higher among smoking quitters with lung cancer (5.7 vs. 3.9 years,  $p=0.004$ ), and 36 months higher among smoking quitters with kidney cancer (10 vs. 7 years,  $p=0.002$ ), than continued smokers with similar cancer types. After adjustments, smoking cessation remained associated with decreased risk of all-cause mortality (lung cancer HR: 0.67 (0.53 – 0.85); kidney cancer HR: 0.50 (0.30 – 0.84)), cancer-specific mortality (lung cancer HR: 0.75 (0.58 – 0.98); kidney cancer HR: 0.56 (0.32 – 0.99)), and disease progression (lung cancer HR: 0.70 (0.56 – 0.89); kidney cancer HR: 0.48 (0.31 – 0.86)). Similar effects for postdiagnosis smoking cessation were observed among mild-moderate and heavy smokers, and patients with earlier and later cancer stages.

**Conclusion:** Smoking cessation after diagnosis resulted in a material improvement of overall and progression-free survival among current smoker patients with lung and kidney cancers. Given that at least 50% of active smokers with lung and kidney cancers are thought to continue smoking after diagnosis, these results provide an important opportunity to substantially improve survival from these cancers.

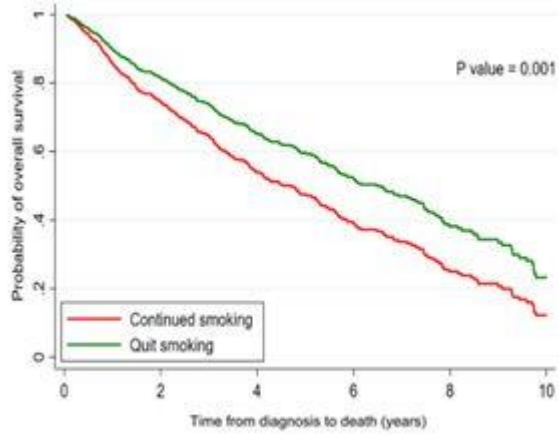
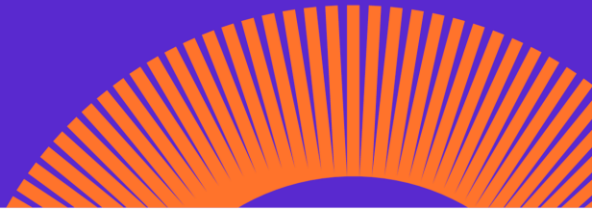


Figure1. Quitting smoking postdiagnosis and lung cancer survival

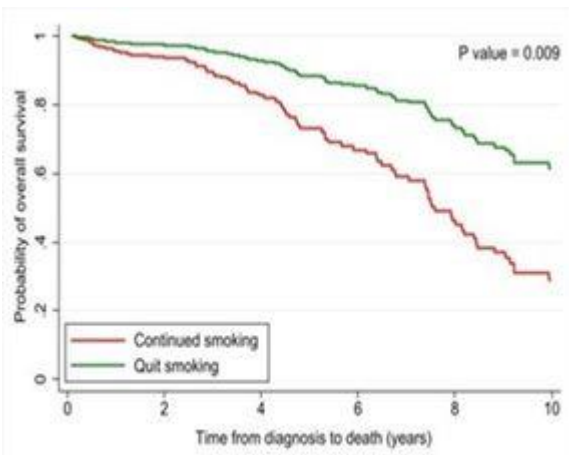


Figure2. Quitting smoking postdiagnosis and kidney cancer survival

Have you got a Conflict of Interest?: No