Lung Cancer in Never Smokers

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Most never smokers who develop lung cancer have tumor mutations that make them eligible for precision medicine, according to a recent study.

At least 10% to 20% of people with lung cancer never smoked, and they appear to have a distinct form of the disease. (See "Finding Grace in Adversity."). One difference is that it occurs more often in women. Another is that patients are more likely to have so-called driver mutations that spur uncontrolled cell growth—and that can be treated with targeted therapies.

Ramaswamy Govindan, MD, of Washington University School of Medicine in St. Louis, and colleagues performed genetic sequencing on 157 lung tumor samples from people with no history of smoking. They found that 78% to 92% had potentially treatable driver mutations, compared with 50% of tumors from smokers. Available medications target ALK, BRAF, EGFR, KRAS, MET, NTRK, RET and ROS1 mutations.

"We found that the vast majority of these patients have genetic alterations that physicians can treat today with drugs already approved for use," Govindan says.

On the other hand, smokers had more mutations overall, making them more likely to benefit from immunotherapy.

These findings underscore the importance of tumor genomic testing to help guide treatment and also raise the question of whether lung cancer screening—now recommended for current and former heavy smokers—may be appropriate for never smokers as well.
