Immunotherapy drug shows potential to cure advanced lung cancer

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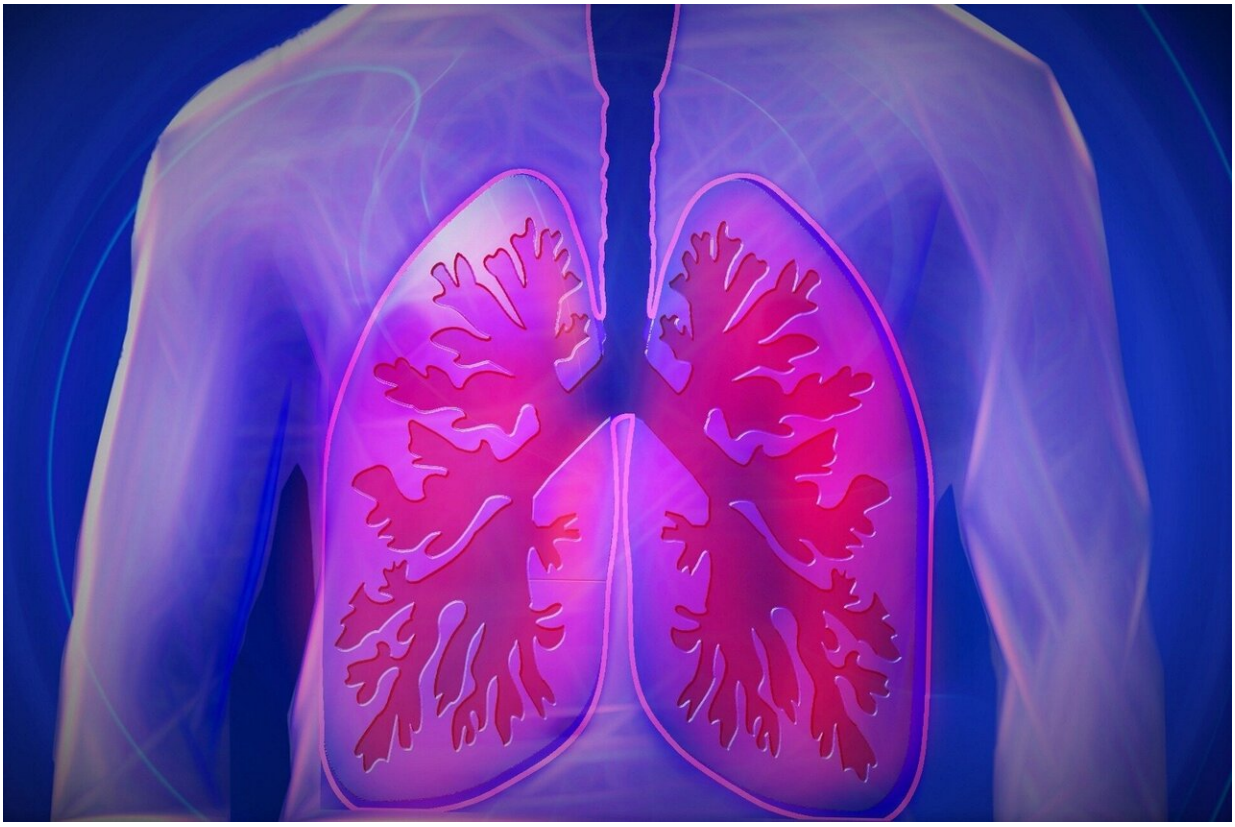

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In a new study including Yale Cancer Center and Smilow Cancer Hospital researchers, the cancer immunotherapy drug pembrolizumab (Keytruda), increased survival for patients with advanced non-small cell

lung cancer (NSCLC), a disease once considered an aggressive, and uniformly fatal cancer. The findings were presented at the American Society of Clinical Oncology (ASCO) annual meeting in Chicago.

"This represents a tectonic shift in the treatment of lung cancer," said study co-author Joseph Paul Eder, MD, professor of medicine (medical oncology) in the Phase I Clinical Trials Program at YCC. "Five years ago, no one with this advanced cancer would have survived. Now that we have patients with progression free survival for at least five years, we can consider them cured."

The new results show that five years after treatment, 18 percent of 550 patients treated had survived and the survival rate was highest (23.2 percent) in treatment "naïve" patients compared with 15.5 percent in patients who had received cancer treatments

While this study evaluated pembrolizumab as stand-alone therapy, other KEYNOTE studies have shown that combining the drug with chemotherapy or other treatments increases survival even more, based on early results, Eder said. This study is the first trial to evaluate pembrolizumab in advanced lung cancer, and they provide the longest efficacy/safety follow-up for NSCLC patients treated with the drug.

There are many different KEYNOTE trials underway that treat a variety of cancers. And in 2017, the FDA approved use of pembrolizumab in any tumor with a specific genetic change regardless of the cancer's location—the first cancer drug to be approved based on a genetic change alone. The drug had already been approved for lung, head and neck, bladder, skin cancers and Hodgkin lymphoma.

The drug works by allowing the immune system's killer T cells to target cancer. It does this by overcoming a natural "checkpoint" that normal cells place on T cells, so that the immune system will not attack these

healthy cells.

The FDA first approved pembrolizumab in 2015 for the treatment of patients with advanced non-small cell lung cancer (NSCLC) with high PD-L1 expression who had failed other therapies. Then, in 2016, the FDA expanded its approval to allow the drug to be used as first-line therapy in patients with high PD-L1 expression. In 2017, pembrolizumab was granted accelerated approval by the FDA as a first-line combination therapy for metastatic non-squamous NSCLC regardless of PD-L1 status.

"Checkpoint inhibition is a game changer—the start of a revolution in agents that targets cancer based on characterizes that are common across cancer types, not on where they developed," said Eder.

More information: Edward B. Garon et al. Five-year long-term overall survival for patients with advanced NSCLC treated with pembrolizumab: Results from KEYNOTE-001., *Journal of Clinical Oncology* (2019). DOI: 10.1200/JCO.2019.37.18_suppl.LBA9015

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