Anaplastic lymphoma kinase-positive (ALK+) non-small cell lung cancer (NSCLC)

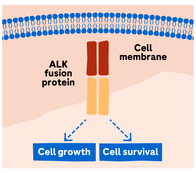
Global burden of lung cancer

Every year lung cancer causes **1.8 million deaths** worldwide, more than any other cancer.[1]

About **85%** of lung cancer cases are NSCLC.[2] Approximately **5%** of these are ALK+.[3,4]

What is ALK+ NSCLC?

In ALK+ NSCLC, mutations in the ALK gene within the tumour's DNA, known as gene fusions or rearrangements, drive cancer cell growth and survival.[5,6]

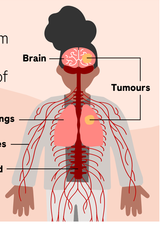


Patient profile

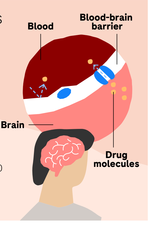
Median age	Gender	Smoking history
52 years old[7]	Similar prevalence in men and women[3,8]	More common in people who have never smoked or light smokers[7]

ALK+ NSCLC can spread to other parts of the body, known as metastases

The central nervous system (CNS) is a common site of progression.[9]



CNS metastases are difficult to treat as the blood-brain barrier blocks and actively removes some drug molecules from the brain.[10]



A treatment with the added benefit of CNS activity can delay development and worsening of CNS metastases and prolong time to disease progression.[10,11]

Earlier diagnosis and treatment for resectable NSCLC could provide more opportunities for cure

About half of all people with early-stage lung cancer (45-76% depending on disease stage) experience a cancer recurrence or die in the five years following surgery, despite adjuvant chemotherapy.[12]

There is an urgent need for improved treatment options for resectable ALK+ disease to reduce the risk of the cancer returning and spreading, giving people the possibility to live longer, disease-free lives.

ALK inhibitors (a type of targeted therapy) stop the ALK-mutated protein from working and inhibit the growth and survival of the ALK+ cancer cells.[5,7]

ALK inhibitors have shown significant efficacy in advanced disease, and are now being investigated in resectable disease.[13]

People with ALK+ lung cancer may also suffer from stigma and judgement, due to the association of lung cancer with smoking, which can make them feel lonely and discouraged from seeking advice.[14]

Earlier diagnosis and better treatment options for people with resectable NSCLC could help to prevent recurrence and provide patients with the best opportunity for cure.[15,16]

REFERENCES

1. World Health Organization. Cancer. [Internet; cited 2023 October] Available from: https://www.who.int/news-room/fact-sheets/detail/cancer.
2. American Cancer Society. What Is Lung Cancer? [Internet; cited 2023 October] Available from: https://www.cancer.org/cancer/non-small-cell-lung-cancer/about/what-is-non-small-cell-lung-cancer.html.
3. Barlesi F, et al. Routine molecular profiling of patients with advanced non-small-cell lung cancer: results of a 1-year nationwide programme of the French Cooperative Thoracic Intergroup (IFCT). The Lancet 2016 Jan;387(10026): 1415-142.
4. Tian H, et al. Clinical characteristics and sequence complexity of anaplastic lymphoma kinase gene fusions in Chinese lung cancer patients. Lung Cancer 2017 Dec;114:90-95.
5. Roskoski Jr R. Anaplastic lymphoma kinase (ALK): structure, oncogenic activation, and pharmacological inhibition. Pharmacol Res 2013 Feb;68(1):68-94.
6. Choi YL, et al. Identification of novel isoforms of the EML4-ALK transforming gene in non-small cell lung cancer. Cancer Res 2008 Jul;68(13):4971-6.
7. Chia PL, et al. Prevalence and natural history of ALK positive non-small cell lung cancer and the clinical impact of targeted therapy with ALK inhibitors. Clin Epidemiol 2014 Nov;6:423-32.
8. Lin HM, et al. Economic burden in patients with ALK + non-small cell lung cancer, with or without brain metastases, receiving second-line anaplastic lymphoma kinase (ALK) inhibitors. J Med Econ 2019;8:23;894-901.
9. Johung KL, et al. Extended Survival and Prognostic Factors for Patients With ALK-Rearranged Non-Small-Cell Lung Cancer and Brain Metastasis. J Clin Oncol 2016 Jan;10;34(2):123-9.
10. Misra A, et al. Drug delivery to the central nervous system: a review. J Pharm Pharm Sci 2003 May-Aug;6(2):252-73.
11. F. Hoffmann-La Roche Ltd. data on file.
12. Pignon JP, et al. Lung Adjuvant Cisplatin Evaluation: A Pooled Analysis by the LACE Collaborative Group. World J Clin Oncol 2008;26(21):3552-3559.
13. Peters S, et al, Alectinib versus Crizotinib in Untreated ALK-Positive Non-Small-Cell Lung Cancer. N Engl J Med 2017 Aug; 377(7):829-838.
14. Díaz D, et al. Stigmatizing attitudes about lung cancer among individuals who smoke cigarettes. NIH PubMed Central 2022 Apr.
15. Cassim S, et al. Patient and carer perceived barriers to early presentation and diagnosis of lung cancer: a systematic review. BMC Cancer 2019 May;19(1):25.
16. Cancer.net. Information about Non-Small Cell Lung Cancer. [Internet; cited 2023 October] Available from: https://www.cancer.net/cancer-types/lung-cancer/view-all.

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