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High numbers of patients in poorer countries are missing lung cancer tests and treatment

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Severe inequalities exist between countries regarding the availability of an essential lung cancer test and a drug which together can improve outcomes for patients through a personalised approach to treatment.

A new study, published in the *European Respiratory Journal* today (31 March, 2016), has found that despite the test and treatment being available to 70% of the world's population, there are large discrepancies in patient access.

In the last 10 years, a group of drugs, known as tyrosine kinase inhibitors (TKIs), have emerged as a treatment for lung cancer patients whose tumour has continued to grow despite chemotherapy. In this group of patients, the drugs work by blocking mutations of specific receptors, known as epidermal growth factor receptors (EGFR), in the cancer cells that help the cells to grow and survive.

It is essential that healthcare professionals identify which patients have mutations of the EGFR, so that these patients can bypass chemotherapy and be prescribed a TKI drug, as research has shown this to be more effective for this group of patients. Patients who do not have the mutation to the EGFR should be given standard chemotherapy, as research has shown TKIs are less effective than chemotherapy for this group.

The study analysed data from 74 countries, comprising 78% of the worldwide population, on the availability of the EGFR test and various

TKI drugs. The researchers used the Human Development Index (HDI) as a statistic summarising life expectancy, education and income per capita into one indicator.

They found that the EGFR mutation test was available in 57 countries - 70% of the worldwide population. The cost was free for 6.5% of the worldwide population and more frequently free in countries with a high HDI. For 42.6% of the worldwide population, the cost was less than USD500. A TKI drug called erlotinib was the most widely available TKI, with 75% of the worldwide population having access to it. However it was only free of charge for the patient in 28 countries (10% of the worldwide population). A clear association was seen between a low or medium HDI and the unavailability of TKIs or EGFR testing.

Lead author, Dr Mélodie Carbonnaux from Cancer Insitute of Hospices Civils de Lyon in France, commented: "This is the first study of its kind to look at the availability of this essential test and treatment for patients with lung cancer. In 2014, a significant number of patients in essentially poorer countries may have benefited from these highly effective treatments but were not able to access them. 10 years after the arrival of this targeted therapy, there is still a lack of availability to these undeniably effective technologies and treatments in countries with a low HDI.

"We hope that our results can be a launching point for the creation of a worldwide network for the implementation and follow-up of this kind of analysis in the future. Clinical trials, strengthening the role of institutions and creating public-private partnerships are all possibilities that must be explored in order to improve access to these effective but costly, innovative technologies."

More information: Mélodie Carbonnaux et al. Inequalities in lung cancer: a world of , *European Respiratory Journal* (2016). DOI:

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