Air pollution speeds up death of lung cancer patients

[Subodh Varma](http://timesofindia.indiatimes.com/toireporter/author-Subodh-Varma-479086803.cms), TNN | Aug 5, 2016, 12.58PM IST

NEW DELHI: A big, population based study of lung cancer patients in California has shown that their survival is linked to the amount of air pollutants they are exposed to. Those living in areas with high levels of nitrogen dioxide (NO2) and particulate matter (both PM10 and PM2.5) live less after acquiring lung cancer. And, this is all the more true for those in early stages of the deadly disease.  
  
The researchers tracked the health outcomes up until the end of 2011 of more than 352,000 people newly diagnosed with lung cancer between 1988 and 2009, and whose details had been entered into the US California Cancer Registry. Using data from US Environmental Protection Agency air quality monitoring stations, study participants' exposure to air pollutants was mapped to their residences. The study is published in the journal Thorax.  
  
Lung cancer is of several types and depending on when it is diagnosed, survival rates are different. For patients with early stage disease, average survival time was shortest for those with small and large cell cancers (around 1.5 years) and longest for those with adenocarcinoma (around 5 years).

Almost half of the study participants (45.4%) lived more than 1500 metres away from a major interstate motorway. Less than 10% lived within a 300 metre radius of one.  
After taking account of these, and other potentially influential factors, the calculations showed that higher exposures to each of the four pollutants were associated with a correspondingly heightened risk of death and shorter average and 5-year survivals.  
  
But the magnitude of heightened risk was greatest for patients with early stage disease, among whom average survival was 2.4 years for those with high PM2.5 exposure (at least 16 ug/m3) and 5.7 years for those with low exposure (less than 10 ug/m3), for example.  
Overall, for patients with early stage disease, risk of death from any cause was 30% greater for NO2; 26% greater for PM10; and 38% greater for PM2.5. The impact of exposure to O3 was small (4%).  
  
These trends were particularly evident among patients with early stage adenocarcinoma.  
  
As might be expected, survival for patients with advanced disease was poor, irrespective of exposure to pollutants.  
  
This is an observational study so no firm conclusions can be drawn about cause and effect. And the researchers point to several caveats, including a lack of data on potentially important risk factors, such as an individual's lifestyle, smoking status, and alcohol intake; and the inability to capture road traffic pollution.  
The most recent figures from the World Health Organization estimate that 1.8 million new cases of cancer were diagnosed in 2012 alone.