Less costly to screen for and treat early-stage lung than to treat late-stage lung cancer

24 September 2014

The average cost to screen high-risk individuals for developing lung cancer with low-dose computed tomography (LDCT) plus the average cost of curative intent treatment, like surgery, is lower than the average cost to treat advanced stage lung cancer, which quite rarely results in a cure.

The National Lung Cancer Screening Trial (NLST) has previously shown that LDCT screening of people at high-risk for lung cancer reduces lung cancer mortality by 20%, thus many organizations including the United States Preventative Services Task Force (USPSTF) have recommend LDCT screening for these individuals. It is thought that if lung cancer is detected at an early stage with screening that it can be cured and the consequences of this are a significant reduction in lung cancer mortality, as the 5-year survival rate for early-stage disease is 54%, and a reduction in the need for expensive and toxic treatments for advanced late-stage lung cancer, which seldom results in a cure as reflected by a 5-year survival rate of 4%. However, in the US 8.6 million people meet the high-risk criteria, which could equate to a significant screening cost.

The Pan-Canadian Early Detection Study prospectively examined the costs for the resources used to screen annually, treat (if necessary), and follow for 2 years 2059 participants who had a 2% or greater risk of developing lung over 3 years as determined by a Web-based lung cancer risk prediction tool.

The *Journal of Thoracic Oncology*, the official journal of the International Association for the Study of Lung Cancer, published these results in its October issue. The average cost per-person for at least 2 annual LDCT screens and all the necessary follow-up or repeat scans for those without lung cancer was $453 for the entire study period versus $2248 for those with lung cancer. The mean per-person cost for diagnostic workup, curative intent surgical treatment, and 2 years of follow-up was $33,344 for those diagnosed with lung cancer. In comparison the cost for treating advanced-stage lung cancer with chemotherapy, radiotherapy, or supportive care alone was $47,792.

"The number of deaths that potentially could be prevented and the number of life years gained with lung cancer screening using LDCT is greater than any new treatment modality offered over the last 2 decades", says the authors of the study. Additionally, "If expensive targeted-therapies become widespread in the treatment of advanced, inoperable lung cancer, a screening program could potentially become cost saving while at the same time improving patient outcomes". The authors also note that "our risk prediction tool has been found to have 11.9% greater sensitivity in identifying those who would be diagnosed with lung cancer in the 6 years of follow-up compared with the NLST criteria, thus reducing the number of people that needed to be screened to detect lung cancer and improving cost-effectiveness".

Provided by International Association for the Study of Lung Cancer