We are now over a decade out from the publication of the results of the National Lung Screening Trial in the United States which showed a 20% reduction in lung cancer mortality with annual low-dose computed tomography (LDCT) screening compared to annual chest radiography screening (1). This was the first time that lung cancer screening was shown to decrease mortality and was a pivotal advance in the fight against lung cancer. Subsequently, the Nelson trial in Europe demonstrated a 24% reduction in lung cancer mortality in men and a 33% reduction in women with annual LDCT compared to no screening (2). Despite the documented benefit of lung cancer screening, utilization remains low, with <10% of eligible patients undergoing screening in the United States. There remain significant disparities in access to lung cancer screening, often leaving populations with the highest rates of lung cancer deaths with the least access to screening. Lung cancer still remains the leading cause of death worldwide, with an estimated 1.8 million deaths in 2020.

Lung cancer screening has significant challenges compared to other screening modalities. Eligibility is somewhat arbitrary and different between various countries and even within the United States depending on what health insurance one has. Maximizing the benefit of screening will improve as we identify the population at highest risk of developing lung cancer and those that will have the most benefit in terms of lung cancer mortality reduction. Risk modeling has been shown to increase the number of lung cancer deaths averted, but also potentially increases overdiagnosis without a change in overall quality-adjusted life years gained. Finally, there remain significant concerns about false positive results, risk/harm ratio, invasive procedures for benign lesions and how to handle other significant findings seen on LDCT.

In this book, you will find a compilation of publications from experts in the field of lung cancer screening from across the globe. The authors discuss the current status of lung cancer screening throughout the world, the use of radiomics, artificial intelligence and biomarkers in lung cancer screening, smoking cessation and psychologic effects associated with screening, and the challenges of lung cancer screening. I think this will be a valuable resource for all of those involved in lung cancer screening. The last decade saw the publication of the first trials demonstrating the benefit of LDCT screening in the reduction of lung cancer mortality and the subsequent implementation of lung cancer screening programs across the globe. In the next decade, we must focus on the safe and effective expansion of screening, decreasing disparities while optimizing risk/benefit ratio. This book is a timely start to this process.

References

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