

Lung cancer is one of the most prevalent and deadliest cancers worldwide. Early detection of lung cancer can improve treatment outcomes and reduce lung cancer mortality. Lung cancer screening programs, particularly low-dose computed tomography (CT) screening, have shown promising results in detecting lung cancer at an early stage. Thus, CT lung cancer screening has become a vital tool in the fight against lung cancer, apart from smoking cessation programs. The 32 articles in this book, a themed collection of related articles from journals of AME, provide a timely and comprehensive overview of the current status of CT lung cancer screening, the methods employed, the impact of screening, and the challenges that lie ahead.

The first section gives an overview of lung cancer screening. The articles in this section shed light on the past, present, and future of lung cancer screening, highlighting the importance of early detection, and the need to target hard-to-reach populations. The review of deep learning applications, provides insight into how artificial intelligence (AI) algorithms can improve the accuracy of lung cancer screening (1). A review on lung cancer screening utilization underscores the importance of addressing barriers to participation (2).

The second section provides an update on the current status of lung cancer screening. The articles in this section highlight the progress made in lung cancer screening in Europe and Korea. Results from the German Lung Cancer Screening Intervention Study and the Korean Lung Cancer Screening Project give insight into implementation of a screening program, the importance of risk prediction models, and the potential value of lung function assessment and autoantibody tests.

The third section of the book focuses on the methods employed in lung cancer screening. Articles in this section discuss the latest CT technologies and protocols for reducing radiation dose. The role of AI in detection, quantification and characterization of lung nodules is described. The role of radiologists in screening and the radiological diagnostic algorithm for lung nodules found in CT lung cancer screening are also discussed. Integration of biomarkers based on blood tests into CT screening shows promise in discriminating between benign and malignant findings.

The fourth section of the article collection focuses on the impact of lung cancer screening. The importance of combining lung cancer screening with smoking cessation programs is emphasized. CT screening itself may provide a teachable moment to the screenee to stop smoking. A review on socioeconomic factors shows their impact on lung cancer screening regarding, among others, inclusion rate and false positives rate, and stresses the need to address these disparities (3). Furthermore, the psychological effect of lung cancer screening on screenees is reviewed.

The fifth section of the book focuses on the challenges of lung cancer screening. Articles in this section shed light on the ongoing challenges in the implementation of lung cancer screening, such as training of radiologists, optimization of screening intervals and management of ancillary findings. The concept of overdiagnosis in lung cancer screening is elucidated. The review of implemented programs in the United States provides insight into challenges to be faced by screening programs around the world.

References

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