Validation of Lung Cancer Screening Value During COVID-19 Pandemic

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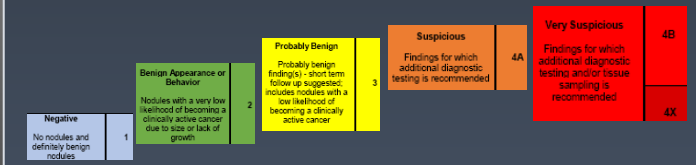
Background

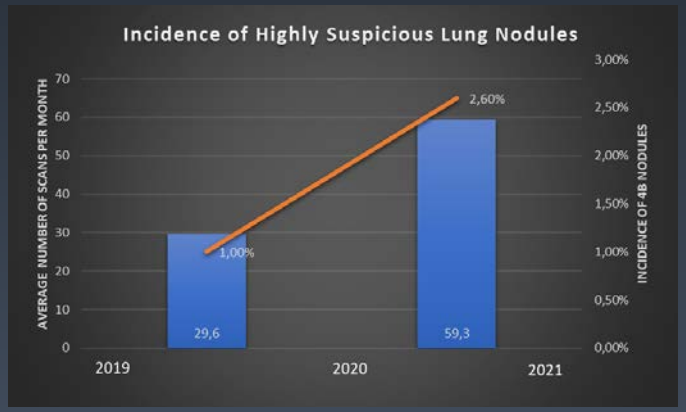
- The COVID-19 pandemic greatly decreased volume of outpatient screening programs, with implications for detection and diagnosis
- Lung cancer is the leading cause of cancer death in the United States
- Screening in high-risk patients an essential for appropriate treatment course
- Low dose CT (LDCT) screening enables detection of pulmonary nodules and stratification via the lung imaging reporting and data system (Lung-RADS) score with high specificity and sensitivity
- Annual screening associated with a 10-year survival rate of 80% and a 20-year survival of 80.5%
- Lung cancer screening volume was explored before, during, and after the peak of the COVID-19 pandemic to determine how delayed screening affected incidence of very suspicious pulmonary nodules



Methods

This is a retrospective cohort analysis of patients receiving lung cancer screening LDCT examinations at our Staten Island, New York based outpatient imaging center. Time periods were divided by the pre-pandemic (1/2019-2/2020), COVID-19 peak (3/2020-7/2020), and post-pandemic peak (8/2020-5/2021). Monthly screening volume was analyzed, alongside patient age, sex, and Lung-RADS pulmonary nodule classification. Incidence of suspicious (4A) and very suspicious (4B) nodules were compared in these time periods.

Results



Average monthly lung cancer screening CT examinations decreased from pre-pandemic to peak-pandemic levels (29.6 vs 24.8 exams per month) and increased in post-peak period (59.3 exams per month). The incidence of high-grade pulmonary nodules (Lung-RADS 4B) were demonstrated to be higher in the post-peak vs. the pre-pandemic periods (2.6% vs. 1.0% incidence).

Conclusions

- Lung cancer screening volume decreased at the onset of the COVID-19 pandemic peak period
- Lung cancer screening exam volume increased considerably in post peak period
- Increased incidence of very suspicious pulmonary nodules in post peak period by 1.6-fold
- LDCT scans are a core component of lung cancer detection and management and have been shown to effectively decrease mortality
- Resources should be focused on expanding lung cancer screening programs to improve patient accessibility to quality imaging in the most equitable manner

References

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