

**Comparative Prevalence of Incidentally Detected Lung Malignancies on CTAC for MPI**

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Dear Editor:

We read with interest the study published by Tung and Heyns.<sup>1</sup> It echoes the sentiments we espoused in our findings.<sup>2</sup> We, too, support thorough investigation of incidental findings on computed tomography for attenuation correction (CTAC) during myocardial perfusion imaging (MPI). In particular, we share concerns about lung malignancies discovered by this avenue.

Interestingly, there were considerable similarities as well as significant differences in the respective patient cohorts. The age group was comparable. In both groups, there was a range of histologic types represented. On the other hand, we noted that the series of patients studied by Tung and Heyns<sup>1</sup> was entirely male. Most surprisingly was the occurrence rate of malignancies being discovered incidentally on MPI. The frequency of malignancy of chest in the patients who underwent MPI in this series was 0.73% (8/1,098 patients). By contrast, we identified 10 primary thoracic cancers amongst 3,122 patients. This equates to 0.32%. This is less than half the frequency suggested by Tung and Heyns.

We wonder if the CTAC settings (in terms of voltage, current, collimator, rotation time and pitch) were comparable. Other factors which determine spatial resolution on CT scan include field of view, pixel size, focal spot size, magnification, patient motion, kernel, slice thickness, detector size.<sup>3</sup> We are at a loss to explain the difference in detection rates otherwise. Perhaps the authors can give suggestions on why our respective cohorts, and prevalences, differed so significantly.

**REFERENCES**

- <sup>1</sup> Tung RT, Heyns J. Incidental findings of malignancy of the chest by single photon emission computed tomography myocardial perfusion imaging (SPECT-CT MPI): One year follow-up report. *Kans J Med* 2020; 13:280-284. PMID: 33312410.
- <sup>2</sup> Delaney FT, Fong KM, Lee JC. Primary thoracic cancers incidentally detected on CT attenuation correction images during myocardial perfusion scintigraphy. *Clin Lung Cancer* 2018; 19(5):e575-e579. PMID: 29673621.
- <sup>3</sup> Murphy A. Spatial resolution (CT). <https://radiopaedia.org/articles/spatial-resolution-ct>. Accessed: December 24, 2020.

**Reply to Dr. Lee and Dr. Chong**

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Delaney et al.<sup>1</sup> reported 10/3,122 (0.32%) frequency of detecting chest malignancy by CTAC during MPI because of significant incidental findings (IF) compared to 8/1,098 (0.73%) patients in our patients.<sup>2</sup> However, our recent report included not only 6/1,098 (0.55%) cases of chest malignancies detected initially because of IF on CTAC,<sup>3</sup> it also included an additional two cases of malignancy detected during one-year follow-up among those patients who were found to have significant IFs that required further follow-up. Thus, the comparable prevalence of detecting chest malignancy in our respective series was 0.32% vs. 0.55%. We are uncertain for the reason(s) for higher prevalence of malignancy in our study but a few factors might be considered:

- 1) The SPECT/CT MPI cameras used in our study were Siemens' Symbia Intevo Excel<sup>3</sup>, installed in 2016, a newer version of Symbia T6 camera used in their study.
- 2) In our study, both sets of CT at rest and after stress were reviewed to reduce or minimize the effects of respiratory motion artifact; it is unclear to us if these also were performed in their study.
- 3) They correctly pointed out that most of our patients were of male gender; this was due to the fact that our patient population included only veterans, who were predominantly male. They are particularly at risk as current or past smoking is more common among the veterans.<sup>4</sup> According to recent US Centers for Disease Control and Prevention report, about 29.2% US veterans used tobacco products during 2010-2015 which was similar to that reported in 1997.<sup>5</sup> The higher incidence of malignancy in our studies could be due to these differences in the patient population studied.<sup>2,3</sup>

**REFERENCES**

- <sup>1</sup> Delaney FT, Fong KM, Lee JC. Primary thoracic cancers incidentally detected on CT attenuation correction images during myocardial perfusion scintigraphy. *Clin Lung Cancer* 2018; 19(5):e575-e579. PMID: 29673621.
- <sup>2</sup> Tung RT, Heyns J. Incidental findings of malignancy of the chest by single photon emission computed tomography myocardial perfusion imaging (SPECT-CT MPI): One Year follow-up report. *Kans J Med* 2020; 13:280-284. PMID: 33312410.
- <sup>3</sup> Tung RT, Heyns J, Dryer L. Incidental findings of pulmonary and hilar malignancy by low-resolution computed tomography used in myocardial perfusion imaging. *Fed Pract* 2019; 37(Suppl 2); S27-31. PMID:32952384. PMID: 32952384.
- <sup>4</sup> McKinney WP, McIntire DD, Carmody TJ, Joseph A. Comparing the smoking behavior of veterans and nonveterans. *Pub Health Reports* 1997; 112:212-217. PMID: 9160055.
- <sup>5</sup> Odani S, Agaku IT, Graffunder CM, Tynan MA, Armour BS. Tobacco product use among military veterans – United States, 2010-2015. *MMWR* 2018; 67:7-12. PMID: 29324732.