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Usefulness of pulmonary artery diameter in diagnosing pulmonary hypertension in patients admitted to tuberculosis intensive care unit

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ABSTRACT

Objective/background: Pulmonary hypertension (PH) can be a complication of patients with severe pulmonary tuberculosis (TB). We aimed to study the correlation between pulmonary artery (PA) diameter (PAD) as measured by computed tomography (CT) and mean PA pressure (mPAP) as measured by echocardiography. We also aimed to determine the accuracy of PAD in diagnosing PH in patients with pulmonary TB.

Methods: We retrospectively investigated the correlation between PAD measured using CT and mPAP measured using echocardiography in 132 patients with TB and PH, and 68 patients with TB but without PH, admitted to the TB intensive care unit at Masih Daneshvari Hospital in Tehran, Iran. We used logistic regression analysis to determine the relationships between PAD, PA diameter to ascending aorta (AA) ratio, and area of PA to area of AA ratio with mPAP. Using receiver operating characteristic analysis, we examined the utility of the PAD in predicting PH (mPAP $\geqslant$25 mmHg).

Results: PAD had a significant correlation with mPAP ($p < 0.005$ and $r = 0.47$). Also, PA:AA ratio and area of PA to area of AA ratio had significant correlation with mPAP ($r = 0.48$ and $r = 0.47$, respectively; $p < 0.001$). The threshold of 29 mm for PAD was determined using ROC. This index had a sensitivity of 0.55, specificity of 70.2 and area under curve of 0.66.

Conclusion: Although PAD and PA:AA ratio are useful in assessing of presence of PH, we conclude that these CT parameters are not sufficient for ruling in or ruling out PH in this group of patients.

Conflicts of interest

The authors have no conflicts of interest to declare.

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