Response to: 'CT assessment for pulmonary hypertension requires systematic assessment of cardiac, vascular and parenchymal signs' by Marloes *et al*

We thank Marloes *et al* for their comments on our recently published article and their interest in pulmonary artery (PA) size as a potential prognostic marker and also their comments regarding adjusting the measurement for body surface area (BSA).[1]

First, we do recognise the diagnostic value of PA size and PA to aortic (PA:Ao) ratio in selected subgroups of patients, and we have previously shown that a PA:Ao ratio ≥1 in patients with systemic sclerosis and *suspected* pulmonary arterial hypertension (PAH) is highly suggestive of PAH,[2] although the presence of interstitial lung disease can enlarge the PA and result in a false positive diagnosis.[3] However, like Chan *et al*,[4] we feel this measurement is of limited prognostic value in patients with PAH as it correlates only weakly with haemodynamic measures and does not primarily reflect right ventricular (RV) failure. Multiple other factors other than the aetiology of PAH such as disease chronicity also affect PA and PA:Ao ratio, and these would not be mitigated by correcting for BSA. In patients with PAH, those with congenital heart disease have the largest PA size and PA:Ao ratio and yet have the best survival.[5]

In our article, PA:Ao size did not predict outcome in PAH[6] and this is not a surprise given the weak correlation of this ratio with haemodynamic measures. Importantly, in this study multiple other simply made measurements reflecting a pressure and volume-loaded RV including cardiac signs (increased RV:LV ratio, right atrium size, posterior displacement of the interventricular septum), vascular signs (inferior vena cava (IVC) size, severe hepatic vein reflux) and lung signs (presence of pleural effusion and septal lines) were predictors of outcome in PAH at univariate analysis, with IVC size, pleural effusion and septal lines independent predictors of outcome at multivariate analysis.[6]

We hope that having read our recent article that *Thorax* readers will feel empowered to systematically evaluate routinely performed CTs not only when pulmonary hypertension is suspected but also when breathlessness is unexplained. In

addition to looking at the PA size and PA: Ao ratio to identify the likelihood of pulmonary hypertension, we hope that the readership will also systematically evaluate cardiac, vascular and lung signs and realise the added value that they give to CT not only in identifying patients with more severe disease but also to giving clues as to the potential cause of PAH. In adopting a systematic approach, we hope that we will also see improvements in diagnostic rates for PAH.

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