

Letter by Quail, Regarding Article, "Doppler-derived arterial load indices better reflect left ventricular afterload than systolic blood pressure in coarctation of aorta."

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We read with interest the paper by Egbe *et al.*, which described abnormalities of echo derived indices of afterload in repaired coarctation.<sup>1</sup>

We reported similar abnormalities in a prospective study of non-invasive hemodynamics using simultaneous brachial oscillometric BP and phase contrast MRI flow imaging.<sup>2</sup> In agreement with Egbe *et al.*, we found elevated LV mass in patients compared to controls at similar levels of brachial systolic blood pressure (SBP), which suggests that it inadequately accounts for the degree of afterload.

In contrast to Egbe *et al.*, we did not find significant independent associations between LV mass and SBP or total arterial compliance. One possible explanation is differences in the statistical modelling of LV mass and its associated covariates. Several studies have shown that LV mass is strongly determined by variables such as sex, body size, age and race.<sup>3</sup> Whilst we too saw univariable associations with afterload covariates, these were attenuated and became non-significant when non-indexed LV mass was included in a multivariable model with age, sex and body surface area. We would be interested to know if the authors observe similar findings in their data.

After adjustment for known determinants of LV mass, we found that only one component of pulsatile afterload, increased wave reflection, was independently associated with LV hypertrophy, in our younger population. Compression waves travelling back towards the heart, acting to augment late LV systolic load, were found to arise at areas of impedance mismatch in the repaired aorta.<sup>4</sup>

It is imperative that we improve the long-term care of patients with coarctation of the aorta.<sup>5</sup> In this regard, improved non-invasive biomarkers which help us to understand the abnormal hemodynamics associated with poorer clinical outcomes are to be welcomed.

**Disclosures:** None

**References:**

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