Results With LVESP≥150 mm Hg set as indicator of successful TAC (TAC+) and LVESP<150 mm Hg as unsuccessful (TAC-), receiver operating characteristic curve analysis demonstrated that post-operative inner diameter at aortic banding site (IDb), peak flow velocity at aortic banding site (PVb), and peak flow velocity of right/left common carotid artery (PVr/l) at day 3 served as most effective predictors for LVESP at day14 (area under curve=0.9016, 0.9143, 0.8254, respectively. p<0.01 for all). Among all UBM parameters at day3, IDb, PVb, right common carotid artery peak flow velocity (PR), and PVr/l correlated best with LVESP at day14 (R^2=0.5740, 0.6549, 0.5208, 0.2274, respectively. p<0.01 for all). Furthermore, IDb, PVb, and PVr/l at day3 most effectively predict long-term cardiac hypertrophy, using the cut-off values of 0.45 mm, 2698.00 mm/s, 3.08, respectively.

Conclusions UBM can be a noninvasive and effective option for early estimation of LVESP and prediction of successful TAC.

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EARLY ESTIMATION OF VENTRICULAR SYSTOLIC PRESSURE AND SUCCESSFUL AORTIC CONSTRICTION IN A MOUSE MODEL OF CARDIAC PRESSURE OVERLOAD BY ULTRASOUND BIOMICROSCOPY

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Objectives Elevation of left ventricular end-systolic pressure (LVESP) and hypertrophic response in mice varies after transverse aorta constriction (TAC). Micromanometric catheterization, conventionally used to select the mice with successful TAC, is invasive and nonreusable. We aimed to establish noninvasive imaging protocols for early estimation of successful TAC by ultrasound biomicroscopy (UBM).

Methods Out of 55 C57BL/6J mice, we randomly selected 45 as TAC group and 10 as controls. UMB was performed before TAC, and at day3 and day14 after TAC. In all mice, LVESP was measured with a Millar conductance catheter at day14.

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