Indications for Intervention for Coarctation of the Aorta

Sir,

Appreciate the gigantic effort behind the updated Indian recommendations.[1] This letter is an attempt to clarify the ambiguity around the treatment of coarctation of the aorta.

Point one recommends that "Patients with coarctation gradient ≥20 mmHg (Class I)" undergo intervention. Whether it is catheterization/Doppler/upper-lower limb blood pressure derived is unclear. Point five says Doppler gradient, so presume 20 is the peak Doppler gradient across coarctation. This is concerning.

Target catheterization gradient for balloon/stent angioplasty is <10–20 mmHg. The average pretreatment catheterization gradient of 2641 balloon dilatations (48 studies) and 1936 stents (42 studies) was 49.0 and 39.2 mmHg, respectively.[2] Hence, it is general practice to go to the catheterization laboratory only when a meaningful difference can be made. The chances of achieving the same going in with an indication of 20 mmHg peak Doppler gradient are grim. The American Heart Association guidelines recommend 20 mmHg catheterization gradient as indication.[3] The European Society of Cardiology guidelines clarify that Doppler is unreliable for severity assessment.[4] Instead, intervention is recommended for upper-lower limb blood pressure gradient >20 mmHg associated with either resting or exercise-induced hypertension or left ventricular hypertrophy.[4]

Many aspects of coarctation interventions remain controversial. Stenting is preferred when size of vessels permits the same. Stent achieves better gradient reductions with lesser complications.[2,5] For those who are not candidates for stenting, balloon versus surgery is best decided by patient anatomy and age-wise results of individual units for balloon versus surgery. As to indications, there is no ambiguity when there is arm–leg blood pressure gradient more than 20 mmHg or heart failure or left ventricular dysfunction or upper-limb hypertension or left ventricular hypertrophy on quantitative assessment, along with visible significant narrowing on two-dimensional echocardiography.[4,5] Of the studies considered in Salcher *et al.*'s meta-analysis, none mentions a standalone Doppler peak gradient of >20 mmHg as indication.[2] Its self-evident that Doppler peak gradients cannot be substituted for catheterization gradients. The former consistently overestimates the gradients from pressure recovery. It is unusual for significant coarctation to present without any of the above-mentioned clinical features. In such instances, we practice and recommend close follow-up. In case of suspicion, the benefits of additional imaging (computed tomography/magnetic resonance imaging) outweigh the attendant risks of an unwarranted intervention in a small child. Imaging helps in severity assessment and to detect collateral flow which could cause spuriously low gradients. This approach would reduce the number of interventions and complications thereof that the patient has to bear with over a lifetime, which should be the goal.

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Conflicts of interest

There are no conflicts of interest.

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