Author's response to reviews

Title: Feasibility and accuracy of bedside transthoracic echocardiography in diagnosis of acute proximal aortic dissection

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Answer to Reviewers` Report:

„Feasibility and accuracy of bedside transthoracic echocardiography in diagnosis of acute proximal aortic dissection.”

**Reviewer: Mauro Pepi**

The main limitation is that cases included in the study were all affected by the disease. Our goal was to assess the accuracy of transthoracic echocardiography (TTE) in diagnosis of acute type A aortic dissection in comparison to computed tomography (CT). We retrospectively examined medical data of 178 patients transferred to our center due to suspected acute aortic dissection, with both CT and TTE performed.

We deleted a subheading in the introduction, according to the Reviewer`s suggestion.

All TTE examinations were performed and reported by cardiologists on call. Positive findings in terms of flap have been always reported (also in the emergency examination). Additionally, all the data were evaluated retrospectively by the Authors. There was 100% concordance between the initial reports (referred by cardiologist on call) and the analysis performed retrospectively by the Authors.

The initial study group consisted pf 178 patients, however the cardiac surgery was finally conducted in 172 patients (1 patient refused the operation and died, the other 5 patients underwent cardiac arrest and died before being transferred to the operating theatre). Because intraoperative finding was considered the reference for the presence of aortic dissection, we excluded from final analysis these 6 patients who died without cardiac surgery.

According to the Reviewer`s suggestion, the term “intraoperative image” was replaced by “intraoperative finding”.

Although computed tomography demonstrated type A dissection in all 172 patients (100%) of the study population, this does not mean 100% accuracy. In one patient after blunt chest trauma (traffic accident) with positive CT result (but no intimal flap seen on TTE), aortic dissection was not confirmed intraoperatively (so this is one false positive result).

Transesophageal echocardiography is now considered mandatory in the preoperative, perioperative monitoring and immediate post-operative phases of cardiac surgery in aortic dissection. In our center TTE is a first-line choice in all patients with suspected acute aortic dissection. The patients with a certain echocardiographic diagnosis of type A dissection are transferred directly to the operating theatre. Preoperative TEE or CT are performed only in stable patients with a negative TTE result. We believe that this approach facilitates the rapid
diagnosis of acute type A aortic dissection and shortens the delay to definite treatment. Intraoperative TEE is always required when the valve sparing procedures are performed.

**Reviewer: Arturo Evangelista**

All TTE examinations were performed and reported by cardiologists on call. Positive findings in terms of flap have been always reported (also in the emergency examination). Additionally, all the data were evaluated retrospectively by the Authors. There was 100% concordance between the initial reports (referred by cardiologist on call) and the analysis performed retrospectively by the Authors. CT reports were prepared by radiologists on call.

No, it was the retrospective study, so the examiners were not blinded to the clinical diagnosis.

The analysis was performed retrospectively.

Yes, the gold standard (reference) were intraoperative surgical findings. According to the Reviewer’s suggestion, the term “intraoperative image” was replaced by “intraoperative finding”.

Of course, TTE have several limitations, like visualization of intramural hematoma or entry tear location. However, using multi-plane approach (PLAX, 3CH, 5CH, suprasternal, subcostal) allows visualization of the entire ascending aorta in majority of patients. Additionally, the entry of dissection in majority of cases (about 60%) occurs in the proximal segment of ascending aorta, that can be easily assessed by standard TTE planes. According to the Reviewer’s suggestion, these limitations were addressed in the discussion.


Arrows were included in Figures.