

COMMENTARY

Controversies in Cardiogenic Shock

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January 23, 2020

This transcript has been edited for clarity.

Hello. This is Ileana Piña. I'm a professor of medicine at Wayne State University, and this is my blog. I am here at the American Heart Association Sessions in Philadelphia, the beautiful "City of Brotherly Love," and it is an incredibly exciting and jam-packed meeting. We have only 3 days for these meetings, so a lot goes every 5 minutes, including [discussions about cardiogenic shock](#).

As a matter of fact, we published a [paper in the American Heart Journal](#) and it was all about controversies. And it's a group of us, including investigators from Duke, the US Food and Drug Administration, the National Institutes of Health, and other investigators, discussing how maybe we still need a lot more information about shock.

So why the heck are we talking about shock? I learned about [cardiogenic shock](#) when I was a fellow. We learned that it was pretty lethal, with more than 50% of the patients dying no matter what you do. However, now we have entered the era of extracorporeal membrane oxygenation (ECMO) and unloading devices, such as the [Tandem heart and Impella](#).

Is There Still a [Role for IABP?](#)

Why are we having so many discussions? Well, because we used to use intra-aortic balloon pumps (IABP) quite often. I've been doing this for 20 years and have used them often, especially as a [heart failure](#) doc when patients come in decompensated.

But we have some data now from Germany; Dr Thiele presented on [two trials, SHOCK I and SHOCK II](#), which demonstrated that [the IABP was no better than using nothing](#). Therefore, in Germany and in some European countries, the intra-aortic balloon is used hardly at all.

One of our discussants in the session at AHA, Dr Tim Henry, who also is an expert in shock, said that he still uses IABP for some patients.

Maybe the answer about the balloon is that when you have the patient in front of you, you need to be a clinician, and you need to make a decision about [whether that patient needs afterload reduction—which the IABP does extremely well](#)—or whether they will perhaps benefit from perfusion. There are some arguments about how much perfusion to the coronaries you actually get. So as you can see, that's a debate that hasn't been completed.

Unload the Ventricle Pre-revascularization — Yes or No?

The other debate was [whether we really should unload the ventricle first in patients with ST-elevation MI or non-STEMI](#). Navin Kapur, who is at Tufts, has had some really enlightening, beautiful [data](#) about [unloading the ventricle before you go to attack the culprit artery](#).

And now there is an ongoing multicenter trial focused on unloading of the ventricle, [the STEMI DTU trial](#). [How can you unload the ventricle?](#) I think I unload the ventricle quite a bit with [vasodilators](#), but this unloading is more of a mechanical unloading.

Navin Kapur suggests that if you wait 1 or 2 minutes more to open up the artery and you unload the ventricle, you may actually decrease the infarct size, which is one of the things that they're going to be measuring.

The con to this was to get in there and open up the artery as quickly as possible because that's where we have data. The data have shown clearly that if we open up the artery, time is myocardium. You can save myocardium, and maybe the patients won't develop left ventricular dysfunction.

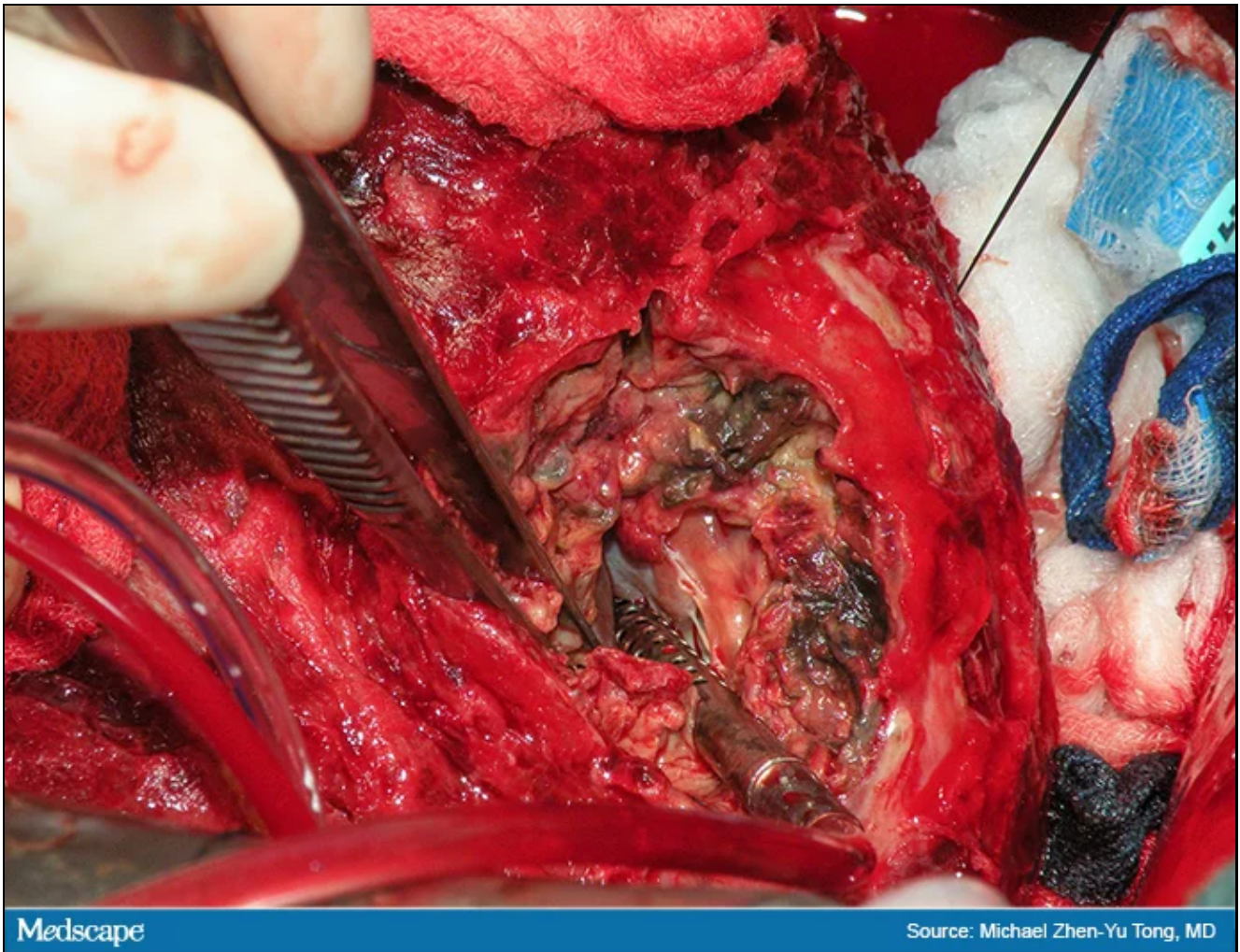
This was a very lively debate. But again, the answer is still out there and we're going to be doing the trial to try to test this hypothesis: If, in fact, you unload the ventricle first, will you really ultimately improve outcome?

Mechanical Lesions — Fix or Leave?

The third debate was that if someone comes in with a [mechanical lesion](#) due to the MI—for example, [a ruptured papillary](#)

muscle, a ventricular septal defect (VSD)—do you run to the operating room and fix them? Or do you treat the patient with medications—vasodilators or vasoconstrictors—and improve the hemodynamics and let that ventricle start to heal? One pro was that, yes, you need to take them to the cath lab and get into the operating room quickly.

One of the surgeons, Michael Tong from Cleveland Clinic, showed some really interesting pictures of fresh infarcts with fresh VSDs.



As the surgeons have been telling us, the tissue really looks like hamburger meat and there is nowhere to sew or to close it that would hold. He also showed pictures of this really huge patch on top of a VSD that was being fixed immediately.

And then he showed us some beautiful pictures of a VSD that had been left to try to heal. You can see in the picture a very nice rim of scar tissue and a place for them to sew. Closing the VSD at that point, placing a patch, and ligating it provided a much prettier picture.

However, there are arguments about that. Many times, I have called surgeons to come and fix some mechanical complication and have been told that they can't sew into that. They ask me to try to get the patient stabilized and then call them back.

So, that's another aspect of shock and we do not have the final answer. I'm not sure that we're going to get a randomized controlled trial to answer this one.

We have seen that we've achieved a little bit of improvement in survival. It's not that grim 50% anymore. We've done a little better and there are some sites that have some really significant data. So until that point, stay tuned. We have more literature coming on the subject.

This is Ileana Piña, signing off. Thank you.

Ileana L. Piña, MD, MPH, is a heart failure and cardiac transplantation expert. She serves as an advisor/consultant to the FDA's Center for Devices and Radiological Health and has been a volunteer for the American Heart Association since 1982. Originally from Havana, Cuba, she is passionate about enrolling more women and minorities in clinical trials. She also enjoys cooking and taking spin classes.

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Cite this: Ileana L. Piñtillá. Controversies in Cardiogenic Shock - *Medscape* - Jan 23, 2020.