Aortic emboli are a significant danger with potentially severe and permanent consequences.1-3

Emboli are released during virtually every cardiac surgery procedure.1,3-7

Related adverse events can manifest themselves long after the procedure.3,4

Is it on your radar now?
Emboli release is very common

It can happen every time a clamp is used during on-pump cardiac surgery. Regardless of surgical skill or patient condition, a shower of potentially dangerous emboli is released into the bloodstream in virtually 100% of cardiac surgery procedures.1,3-5,7

The effects are significant

The subject isn’t new. But a host of recent clinical studies have cast it in a different light, concluding that the frequency and severity of end-organ and neurologic impairment likely attributable to emboli release is significant.1,13 Moreover, related effects that go unrecognized in the immediate postoperative period can emerge months, even years, later—in both substantial and subtle forms. In ways that can drastically impair a patient’s quality of life.8,9

Advances in intra-aortic filtration

Due to recent technological advances, renewed attention is being given to intra-aortic filtration as a necessary part of cardiac surgery, and in standardizing its use. New filtering devices incorporated into the cannula have been demonstrated to provide safe and effective emboli capture and reduction of adverse neurologic and end-organ events.10-12

It’s a bigger issue than you might realize.

Comparison of actual captured aortic emboli to representative vessel diameters, shown in a 3 mm grid. “The average surface area of the emboli retrieved...was 4.0 mm, with a range of 0 to 82.5 mm.”10

Actual photo of emboli captured by intra-aortic filtration device during CABG procedure.

“In this study, 58% of all [embolic] signals were detected immediately after aortic cross-clamp and aortic partial occlusion clamp removal.”5

Renal Complications were reduced by 33% with the use of an intra-aortic filtration device in patients with a moderate to high preoperative risk score.10

Adverse neurologic events associated with coronary artery bypass grafting in which intra-aortic filtration was used were rare and fewer than expected on the basis of the Stroke Risk Index.”11

Artesclerosis plays a role in at least two thirds of adverse events after coronary bypass.13

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The problem is clear to see.
Economic impact

The economic impact of postoperative stroke:14

- Worldwide exceeds $2 billion
- Fivefold increase in hospital mortality
- More than doubling of ICU and LOS days
- $30,000 increase in total hospital charges
- “…stroke patients were only half as likely to be discharged to home, and therefore incurred much more nursing home and rehabilitation center charges.”

References

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