Monitored Anesthesia Care with Transesophageal Echocardiography for Transcatheter Aortic Valve Replacement

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Transcatheter Aortic Valve Replacement (TAVR) has gained popularity as a treatment option for patients with symptomatic aortic stenosis, especially those who are at increased risk for open aortic valve replacement surgery. TAVR has typically been performed using general anesthesia along with transesophageal echocardiography (TEE), although advances in procedural safety and technique have allowed for a shift toward monitored anesthesia care (MAC) with transthoracic echocardiography. We discuss a case under MAC in which malposition of a balloon inflatable aortic valve necessitated intraoperative TEE, assisting the surgical team with valve positioning without the need for conversion to general anesthesia.

We describe an 84-year-old Caucasian female originally diagnosed with aortic stenosis twelve months prior to surgery, who recently had worsening dyspnea on exertion and bilateral leg edema. Preoperative testing revealed severe aortic stenosis, a small aortic annulus as well as a bifascicular heart block, increasing the risk of pacemaker dependence. Decision was made by the cardiac surgery team to use a balloon expandable bovine pericardial tissue transcatheter heart valve. Given the patient’s comorbidities and clinical status, MAC was determined as a prudent option by our cardiac anesthesiology team. During the procedure noncoronary cusp paravalvular regurgitation was discovered on angiography after deployment of the aortic valve. Malposition of the valve was corrected with deployment of a second valve and positioning evaluated using intraoperative TEE, without conversion to general anesthesia. Emergence was uneventful, the patient recovered without complication and was discharged on the second postoperative day.

Advances in TAVR surgery have allowed a shift toward monitored anesthesia care, demonstrating it as a less invasive option to general anesthesia while decreasing length of stay and postoperative complications. Transesophageal echocardiography used under monitored anesthesia care is a valuable tool and can be performed safely and with benefit over a transthoracic approach in complex TAVR cases.