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Can Patients with Critical Aortic Stenosis Undergo Noncardiac Surgery without Intervening Aortic Valve Replacement?

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Case Presentation: A 65-year-old female patient with past medical history of hypertension, diabetes mellitus, and hyperlipidemia was seen for preoperative clearance for repair of right femur fracture. Patient denied chest pain but admitted to progressively worsening dyspnea on exertion over the last few months. Her medications were lisinopril, metformin, and simvastatin. Vital signs on admission were stable, with a blood pressure of 136/72 mm Hg and heart rate of 92 bpm. Labs were normal. Her exam was unremarkable except for a 3/6 harsh systolic murmur. Echocardiogram revealed critical aortic stenosis (AS) with valve area of 0.7 cm². Cardiology recommended aortic valve replacement (AVR), but patient refused surgery. Patient chose to undergo fracture repair surgery despite the explained risks. She was started on beta-blockers and appropriate anesthetic precautions were undertaken. Her postoperative course was complicated by prolonged ventilator support, but patient was successfully extubated after 2 days and was discharged in stable condition.

Discussion: Per the American College of Cardiology/American Heart Association guidelines, severe valvular disease is a major clinical predictor of cardiac risk and elective noncardiac surgery (NCS) should be delayed for intervening cardiac catheterization and/or possible valve surgery. However, several reviews have suggested that patients with severe AS may undergo NCS with relative safety if appropriate perioperative care is provided and careful management of the pathophysiologic changes associated with AS is undertaken. O'Keefe et al reported that in 48 severe AS patients (mean valve area 0.6 cm²) who were not eligible for AVR and underwent NCS, only 1 cardiac event with no deaths and a complication rate of about 2% was seen. This would compare favorably with the national 4% mortality rate for AVR reported by the Society of Thoracic Surgeons. On the other hand, a subsequent report of 19 patients with severe AS (mean valve area < 0.5 cm²) reported 2 perioperative deaths. Raymer and Yang compared 55 patients with significant AS (mean valve area 0.9 cm²) with case-matched controls with similar preoperative risk profiles other than AS undergoing similar surgeries, and cardiac complication rates were not significantly different between the two groups. Thus, patients with severe AS may undergo indicated NCS provided that the presence of severe AS is recognized preoperatively and the patients receive intensive perioperative care.

Conclusion: Critical AS needs to be detected preoperatively, given its prognostic importance. When detected, surgery may still be considered even if AVR is not feasible, and requires a comprehensive co-management team involving anesthesia, cardiology, surgery, and internal medicine.

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