How Safe Is Surgery for PAH Patients?

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Summaries and commentaries from the section editors and invited reviewers present a clinical context for practitioners' application of the latest published research relevant to the care of patients with pulmonary hypertension. In this issue Ioana Preston, MD, discusses a recently published international, prospective survey of patients with PAH undergoing noncardiac and nonobstetric major surgery.

Meyer S, McLaughlin VV, Seyfarth HJ, et al. Outcome of noncardiac, nonobstetric surgery in patients with PAH: an international prospective survey. Eur Respir J. 2013;41(6):1302-1307.

The presence of pulmonary hypertension (PH), whether in its primary form, pulmonary arterial hypertension (PAH), or secondary to heart or lung disorders, is associated with a high risk for complications.[1-4] The perioperative management of PH patients can be challenging, as it is frequently complicated by the postoperative development of a systemic inflammatory response, profound hypoxemia, worsening of PH, and right heart failure.[5] Two old retrospective studies found a preoperative mortality of 7% and 18%, respectively,[6,7] but there is a scarcity of data describing a standardized approach of PAH patients who undergo surgery.

Most recently, Meyer et al[8] reported results of the first international, prospective, 3-year questionnaire-based survey among 11 PH centers and collected data from consecutive patients with PAH undergoing noncardiac and nonobstetric major surgery. The definition of major surgery required the need for either general or spinal anesthesia. A total of 114 patients with PAH (70% female, mean age 57 years) were identified. At the time of surgery, 43% were in New York Heart Association functional class III or IV. Eighty-two percent of the interventions were performed under general anesthesia, and the rest were performed using spinal anesthesia. Major complications occurred in 7 (6.1%) of the patients, of whom 4 died, resulting in an overall perioperative mortality rate of 3.5%, with a mortality of 15% (2/13) associated with emergency procedures and 2% (2/101) with nonemergency procedures (P=0.01). Risk factors for major complications were an elevated right atrial pressure (OR 1.1; 95% CI 1.0-1.3; P=0.01), a 6-minute walk distance of less than 399 meters (OR 2.2; 95% CI 1.1-3.7; P=0.04) at the respective last preoperative assessment, the perioperative use of vasopressors (OR 1.5; 95% CI 1.2-2.7; P=0.03), and the need for emergency surgery (OR 2.4; 95% CI 1.4-3.6; P=0.01). Of note, the majority of elective procedures were performed at the PH centers and all patients were on PAH-specific therapies at the time of the surgery.

Although this study was not powered to compare the 2 types of anesthesia, it appeared that both general and spinal anesthesia were well tolerated and that general anesthesia was not associated with more frequent or more serious complications than regional anesthesia, challenging the consensus among anesthesiologists that regional anesthesia is safer over general anesthesia in patients with PH.[9,10] In addition, since the majority (87%) of the surgical interventions did not use a Swan-Ganz catheter, it appears they are not necessary in patients with stable disease.

This relatively large study suggests that PAH patients who are stable and well controlled on PAH-specific therapies and need to undergo major elective procedures can do so with a low risk of complications, especially if their walk test is over 400 meters, their hemodynamics are not severely impaired, and their procedure takes place at a PH center. On the other hand, emergency procedures in patients with PAH continue to be associated with a high mortality.

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