Elective Surgery
Last Revised: February 2018

It is difficult to provide overall recommendations for elective surgery since this encompasses a large spectrum of procedures. Nearly all PH specialists agree that right ventricular performance, exercise capacity, type of surgery, type of anesthesia, and what therapy a patient is receiving (for example, whether or not a patient is receiving intravenous prostacyclin), all need to be considered in the decision to proceed with elective surgery. While broad guidelines are provided below, each surgical procedure should be evaluated on a case-by-case basis in conjunction with a PH specialist.

PAH patients with less severe functional impairment and with normal right heart function are more likely to tolerate the stress of surgery, and the risks of surgery in such patients is felt to be acceptable by most PAH specialists. In PAH patients with right heart failure and or severe right ventricular dysfunction, it is recommended that any surgery, other than that needed to treat a potentially life-threatening problem, be avoided. Regardless of how good a patient’s exercise capacity is, there is always a risk of complications with surgery, and it is strongly recommended that surgery which is not medically necessary (such as plastic surgery purely to improve appearance) be avoided.

The risks of local anesthesia (numbing medicine under the skin) are low, and this type of anesthesia is recommended when feasible. Any other type of anesthesia (spinal, epidural, and general) carries a greater risk for complications. Lengthy surgeries and procedures involving the chest or abdomen also have a higher risk for complications. When a medical condition requires unavoidable surgery, it is recommended that PAH patients consider having any procedure in which local anesthesia is not an option be performed at a center with expertise in the management of PH. Patients usually maintained on oral therapy may require temporary conversion to i.v. or nebulized treatment until they are able to both swallow and absorb drugs taken orally. Advanced support with ECMO/inhaled prostacyclin/nitric oxide and/or invasive hemodynamic monitoring may be required. It is up to the multidisciplinary team to determine the need for inotropes, intra-/post-operative Swan Ganz catheter monitoring and how to best manage fluid balance. Close interaction between the patient, surgeon, anesthesiologist and PH specialist is is likely to facilitate a safer surgery and recovery.

Similar approaches from joint guidelines established by the American Heart Association and American Thoracic Society are recommended for children with PH. Careful pre-operative planning, consultation with cardiac anesthesia and plans for appropriate post-procedure monitoring are recommended for pediatric patients with PH undergoing surgery or other interventions. In addition, the performance of elective surgery for patients with pediatric PH should be performed at hospitals with expertise in PH and in consultation with the pediatric PH service and anesthesiologists with experience in the peri-operative management of children with PH. Anesthesiologists with extensive experience with cardiac surgery are often recommended to handle other surgeries in children with known PH.
