

# Preoperative Care for Cataract Surgery: The Society for Ambulatory Anesthesia Position Statement

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Cataract surgeries are among the most common procedures requiring anesthesia care. Cataracts are a common cause of blindness. Surgery remains the only effective treatment of cataracts. Patients are often elderly with comorbidities. Most cataracts can be treated using topical or regional anesthesia with minimum or no sedation. There is minimal risk of adverse outcomes. There is general consensus that cataract surgery is extremely low risk, and the benefits of sight restoration and preservation are enormous. We present the Society for Ambulatory Anesthesia (SAMBA) position statement for preoperative care for cataract surgery. (*Anesth Analg* 2021;133:1431–6)

## GLOSSARY

**ACC/AHA** = American College of Cardiology and American Heart Association; **ASA-PS** = American Society of Anesthesiologists physical status; **ASC** = ambulatory surgery center; **CIED** = cardiac implantable electronic device; **CMS** = Centers for Medicare and Medicaid Services; **DAPT** = dual antiplatelet therapy; **ICD** = implantable cardioverter defibrillator; **POQI** = Perioperative Quality Initiative; **SAMBA** = Society for Ambulatory Anesthesia; **TIA** = transient ischemic attacks

More than 20 million cataract extractions are done worldwide yearly. Visual impairment impacts quality of life; increases falls,<sup>1</sup> hip fractures,<sup>2–4</sup> car accidents,<sup>5–11</sup> health care utilization,<sup>12–14</sup> social isolation, dependency, and nursing home placements<sup>15</sup>; and is associated with cognitive impairment.<sup>16–18</sup> It is also associated with higher mortality.<sup>19,20</sup> Waiting more than 4 months to perform cataract surgery after it is clearly indicated is associated with increased complications.<sup>21</sup>

Ophthalmic patients are often elderly with comorbidities which constantly threaten well-being. Diseases such as diabetes, hypertension, obesity, smoking, and systemic steroid use increase the risk

of cataracts.<sup>22</sup> If a patient can lie in a position that allows the procedure, there are few conditions or test results that preclude cataract surgery.<sup>23</sup> In spite of evidence debunking the utility of testing before cataract surgery, studies suggest that medical testing and the use of medical consultations before cataract surgery continue to increase.<sup>24,25</sup> Similarly, it has been emphasized that before delaying cataract surgery, one must consider vision loss, increased rates of falls and hip fractures, and reduced quality of life with continued cataracts. Cataract procedures are typically done with topical local anesthetics and minimal or no sedation. Cataract surgery has minimal physiological stress, no blood loss, fluid shifts, or need to interrupt chronic medications. Cataract surgery patients have a 0.014% chance of dying, and it is unlikely that risk can be lowered.<sup>26</sup> Nevertheless, suitability of American Society of Anesthesiologists physical status (ASA-PS) IV patients in a free-standing ambulatory surgery center (ASC) remains controversial.

In response to requests from members of the Society for Ambulatory Anesthesia (SAMBA), a position statement concerning the safe preoperative care of patients undergoing cataract surgery was developed. To ensure that the recommendations maintain patient safety and have clinical validity in an ambulatory setting, the balance between the benefits and risks of cataract surgery were considered. Other ophthalmologic procedures are beyond the scope of this article.

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## DISCUSSION

Which comorbidities preclude safe anesthetic care for patients undergoing cataract surgery?

There are a few situations where cataract surgery should likely be delayed to allow optimization of comorbidities. These include:

- Myocardial infarction (uncomplicated) within the previous 30 days, if complicated infarction within 60 days
- Percutaneous coronary interventions without stenting within 14 days or with stents within 30 days<sup>27,28</sup>
- Significant arrhythmias with hemodynamic compromise (eg, ventricular tachycardia, atrial fibrillation with rapid ventricular rates<sup>29</sup>)
- Decompensated heart failure<sup>29</sup>
- Acute serious pulmonary conditions (eg, active pneumonia, upper respiratory infection with active symptoms, pulmonary embolus in past 3 months)<sup>30</sup>
- Acute or recent severe neurologic conditions (eg, altered mental status, stroke or transient ischemic attacks [TIA] within 3 months, uncontrolled epilepsy, increased intracranial pressure)<sup>31</sup>
- Malignant hypertension defined as elevated blood pressures with acute end-organ damage in at least 3 different target organs, typically kidneys, brain, and heart.<sup>32</sup> Symptoms and signs may include encephalopathy, stroke, TIA, chest pain, dyspnea, arrhythmias, electrocardiographic evidence of ischemia, heart failure, or acute kidney injury
- Diabetic ketoacidosis or hyperosmolar hyperglycemic nonketotic syndrome

## Does Hypertension Warrant Cancellation of Cataract Surgery?

Hypertension is common in this age group and several studies indicate many patients have elevated arterial blood pressures immediately before cataract surgery.<sup>33</sup> Hypertension is one of the most common reasons for cataract surgery to be postponed.<sup>34</sup> However, there is little evidence to support that hypertension increases adverse events in patients having cataract surgery.<sup>35,36</sup> The Perioperative Quality Initiative (POQI), an international, multidisciplinary organization, recommends that elective surgery should not be cancelled based solely because of a preoperative blood pressure.<sup>37</sup>

The Association of Anaesthetists of Great Britain and Ireland and the British Hypertension Society

have noted that blood pressures obtained on the day of surgery are not reflective of baseline or long-term blood pressures.<sup>38</sup> Patients are encouraged to take all antihypertensive drugs on the day of surgery. SAMBA recommends that cataract surgery should be delayed only for patients with malignant hypertension defined as elevated blood pressures with acute end-organ damage.

## Should Patients Presenting for Cataract Surgery With Hypertension Be Administered Intravenous Antihypertensives to “Normalize” Blood Pressures Before Proceeding With Surgery?

Several studies have questioned the accuracy of preoperative mean arterial blood pressures noting both higher than patients' established ambulatory baseline pressures<sup>39,40</sup> and wide variability compared to mean daytime mean arterial pressures.<sup>41</sup> Using an overestimated value of a patient's normal blood pressure to guide perioperative management of hypertension and hypotension can be harmful if inappropriate vasoactive medications are administered, especially when the ideal target blood pressure is unknown.<sup>36</sup> Some practitioners occasionally administer blood pressure lowering drugs before cataract surgery to treat or prevent perioperative hypertension. However, acute correction or reduction of blood pressure can be harmful and may lead to hypotension in the perioperative period. One study found only a significant association between low, not elevated, preoperative blood pressures and increased postoperative mortality in an elderly population of patients.<sup>2</sup> POQI concluded that there was insufficient data that preoperative blood pressures should alter decisions to proceed with surgery or not, and there is insufficient evidence to support lowering blood pressure in the immediate preoperative period to lower perioperative risk.<sup>37</sup> SAMBA recommends against acutely lowering blood pressures for patients anticipating cataract surgery immediately preoperatively.

## Do Anticoagulants and Antiplatelets Need to Be Interrupted for Cataract Surgery?

Most agree that antiplatelet agents and anticoagulants do not need to be interrupted for cataract surgery.<sup>42</sup> Several studies have shown that it is safe to perform cataract surgery in patients who are taking antiplatelet and anticoagulant medications.<sup>43–47</sup> A multicenter study showed that clopidogrel or warfarin was associated with a significant increase in minor complications with periorbital regional anesthesia, but there was no associated significant increase in surgical bleeding or potentially sight-threatening local anesthetic or surgical complications.<sup>45</sup> The Royal College of Ophthalmologists recommends that cataract

surgery performed with topical or sub-Tenon's anesthesia may be performed without cessation of dual antiplatelet therapy (DAPT).<sup>48</sup> SAMBA recommends continuation of antiplatelet and anticoagulant medications before cataract surgery.

### **Can Patients With Coronary Stents Have Cataract Surgery Regardless of When Those Stents Were Placed?**

The American College of Cardiology and American Heart Association (ACC/AHA) recommend that elective surgery be postponed for 30 days after bare metal stent implantation and 6 months after drug eluting stent implantation.<sup>25,26</sup> However, many have argued that this recommendation does not apply to cataract surgery if DAPT are continued. The stress response is muted with cataract surgery. Cataract surgery compared to other surgical procedures elicits a minimal inflammatory response which tends to be local.<sup>27,49</sup> SAMBA recommends that patients with coronary stents can have cataract surgery 30 days after coronary artery stent insertion as long as DAPT is continued uninterrupted.

### **Does New-Onset Atrial Fibrillation Warrant Cancellation of Cataract Surgery?**

New onset, or more likely newly discovered, atrial fibrillation may occur on the day of surgery. However, for patients presenting for minor surgical procedures, typically of limited duration and complexity (eg, with minimal anticipated blood loss), it may be reasonable to safely proceed despite new onset atrial fibrillation, as long as the patient is asymptomatic and hemodynamically stable.<sup>50</sup> These patients should subsequently be referred for early evaluation and management of atrial fibrillation. SAMBA recommends that cataract surgery not be delayed in patients with atrial fibrillation as long as the patient is asymptomatic with stable hemodynamics.

### **Can Patients With Implantable Cardiac Defibrillators Be Safely Cared for in a Free-Standing ASC?**

It is important to determine the cardiac implantable electronic device (CIED) type, manufacturer, and primary indication for the device.<sup>51</sup> This information is generally available from the manufacturer's identification card given to the patient, a review of the medical record or the most recent CIED interrogation report. Often the underlying condition, such as severe heart failure or malignant arrhythmias are more important than the presence of the device itself.

If patients have had routine follow-up with recommended yearly pacemaker checks and 6-month implantable cardioverter defibrillator (ICD) checks without new concerning symptomatology such as

syncope or cardioversions, they can safely proceed with cataract surgery. The only potential concern is the possibility for patient movement if the ICD happens to activate during the surgery. The likelihood of this is quite low in patients who have not experienced recent or escalating episodes of cardioversions. Typically, there is no risk of electromagnetic interference during a cataract procedure. Some pacemakers with rate adaptive mechanisms may have variable pacing rates which can be triggered by changes in breathing, patient movement, or monitoring devices. These pacing rate changes have been mistaken for arrhythmias, so it is important for anesthesia providers to recognize this paced rate variability as normal functioning.<sup>52-54</sup> SAMBA recommends that practitioners be familiar with CIED functionality, and against reprogramming devices or use of a magnet for patients having cataract surgery.

### **Does Hyperglycemia Warrant Cancellation of Cataract Surgery?**

There is no evidence to support delaying cataract surgery for any specific blood glucose concentration or hemoglobin A1c.<sup>55</sup> The Royal College of Anaesthetists and The Royal College of Ophthalmologists 2012 guidelines for ophthalmic surgery under local anesthesia state that there is insufficient evidence to recommend cancelling surgery above a certain blood glucose concentration.<sup>56,57</sup> SAMBA takes a similar approach and recommends only delaying cataract surgery in patients with evidence of ketoacidosis or hyperosmolar hyperglycemic nonketotic syndrome or significant hypoglycemia.<sup>58</sup>

### **Should There Be a Weight Limit for Cataract Surgery?**

The weight limitation for cataract procedures is based on the weight limit of the stretcher. Most eye stretchers have a weight limit of 300 to 500 lbs. Other considerations include the ability of the patient to transfer themselves or the need for special lifting equipment to ensure patient and employee safety. SAMBA recommends that providers establish and follow institutional guidelines for safe care of obese patients having cataract surgery.

### **Can an ASA-PS IV Patient Safely Undergo Cataract Surgery in a Free-Standing ASC?**

While adverse events are higher in patients with medical comorbidities, cataract surgery is an extremely low risk and highly beneficial procedure. SAMBA recommends that ASA-PS 4 patients with stable comorbidities who can tolerate cataract surgery with topical or regional anesthesia and no or minimal sedation can safely undergo cataract surgery in a free-standing ASC.



### Does the Need for General Anesthesia Compared to Topical With or Without Sedation Alter the Risks of Cataract Surgery?

We are unaware of any robust studies comparing the overall risk of cataract surgery done with general anesthesia compared to no general anesthesia. It is unlikely that such a study will ever be done given the rarity of using general anesthesia for cataract surgery. There are a few underpowered, dated studies looking at stress responses with mixed results. However, evidence suggesting direct correlation between stress response and postoperative outcomes is lacking. Furthermore, the general anesthesia techniques used in older studies assessing stress response do not correspond to current anesthesia techniques for cataract surgery which include use of supraglottic devices, maintenance of spontaneous breathing, opioid-sparing, minimal depth of anesthesia, and topical anesthesia as well. Because the overall risks of most surgical procedures are not different based on the type of anesthesia, it is not likely that there is a substantial difference in risk when general anesthesia is provided for cataract surgery. However, SAMBA recommends that medical comorbidities (eg, a patient with a difficult airway, severe pulmonary disease) are considered when deciding to offer general anesthesia for cataract surgery.

### Does Preoperative Testing Offer Benefits to Patients Before Cataract Surgery?

It is important to note that the Centers for Medicare and Medicaid Services (CMS) has dropped the requirement for a history and physical examination before surgery. There is no benefit of routine testing of patients with coexisting illnesses before cataract surgery.<sup>33,59</sup> Tests are indicated ONLY if the patient presents with a severe medical problem that warrants evaluation even without planned surgery.

The only well-established very low-risk procedure is cataract extraction.<sup>29,60</sup> The 2014 ACC/AHA guideline on perioperative cardiovascular evaluation and management of patients undergoing noncardiac surgery specifically states that cardiac risk assessment should not be done before very low-risk surgeries, such as cataract surgery.<sup>29</sup> SAMBA recommends no testing before cataract surgery unless indicated independent of the procedure.

### What Is Optimal Preoperative Medication Management for Patients Undergoing Cataract Surgery?

SAMBA recommends that patients having cataract surgery can and should typically continue all of their routine medications throughout the perioperative period. ■■

### DISCLOSURES

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