Sedation Standards for Uncomplicated Cataract Surgery Under Topical Anesthesia

A Joint Statement from the OMA Sections on Anesthesiology and Ophthalmology
(Accompanies the Joint Statement on The Current State of Cataract Anesthesia in Ontario)

Modern cataract surgery has become the most commonly performed outpatient surgical procedure in North America. Advances in surgical technique have allowed for a reduced reliance on heavy sedation. Anesthesia is predominantly topical and typically accompanied by procedural (light or conscious) sedation. Despite excellent clinical outcomes intra-operative complications still occur. These include systemic complications (hypertension, bradycardia, over-sedation), significant ocular morbidity and rarely, blindness. A comfortable, cooperative and stationary patient is key to achieving a good result with cataract surgery. Therefore, a qualified, dedicated individual is required during surgery, to supervise and titrate the procedural sedation while monitoring and communicating with the patient.

The purpose of this paper is to clarify the minimum standards required during routine cataract surgery under topical anesthesia in order to ensure optimal sedation and patient safety as various models of sedation emerge in Ontario. Complex cases with ocular co-morbidities, cases done under eye blocks or combined surgical cases routinely take significantly longer, can be more painful, and carry greater risk of intra-operative complications. In these cases optimal patient care requires that an anesthesiologist be immediately available should deeper sedation or general anesthesia be required, sometimes in an unplanned situation. Although these more complex cases do represent a significant portion of cataract surgeries in a typical practice, they are not "routine" and therefore are outside the scope of this position paper.

The College of Physicians and Surgeons of Ontario (CPSO) Out-of-Hospital Standards categorize cataract surgery as a level 2 intervention on the basis of the surgical procedure and the use of procedural sedation (1). This document defines the requirements for managing patients undergoing sedation as follows: "If the physician administering the sedation or regional anesthesia is also performing the procedure, the patient must be attended by a second individual (physician, RN, other RHP) 1) who is NOT assisting in the procedure and 2) who is trained to monitor patients undergoing sedation or regional anesthesia."

This is echoed by the Canadian Anesthesiologists' Society guidelines that state "In general, the individual performing the procedure will not be the individual administering or supervising intravenous sedation. For deeper levels of sedation (RSS 4-6), this requirement is absolute; for

lighter levels, it may be appropriate to delegate monitoring of a sedated patient to an appropriately trained and certified assistant whose sole responsibility is monitoring the sedated patient."(2) In two small studies that used registered nurses or respiratory therapists to sedate and monitor patients under the supervision of an anesthesiologist, the reported rate of consultation with the anesthesiologist was between 4 and 9% of cases (3, 4). The majority of these consultations were minor in nature however, some did result in intervention. There were no conversions to deep sedation, general anesthesia or regional block.

In a situation where the operating ophthalmologist is administering the sedation, the CPSO document further describes that physicians administering moderate sedation shall hold "education and experience to manage the potential medical complications of sedation/anesthesia, including ability to 1) identify and manage the airway and cardiovascular changes which occur in a patient who enters a state of general anesthesia, 2) assist in the management of complications, and 3) understand the pharmacology of the drugs used".(1)

The Canadian Ophthalmological Society (COS) practice guidelines for cataract surgery clearly state that "given the small but significant risk of an adverse medical event (e.g., bradyarrhythmias, hypertension, oxygen desaturation) and the insufficient sensitivity of currently available self-administered questionnaires, preoperative evaluation and intra-operative monitoring of patients' oxygen saturation, heart rate, blood pressure, and pain level by a health care professional are recommended".(5) Furthermore, regarding intra-operative pain, the guidelines report that "12% of patients still report mild pain and 9% report moderate to severe pain. Pain often arises when an intra-operative complication occurs or during prolonged operative times when it is essential to have a still and comfortable patient. In these circumstances, it is justifiable to administer these agents (IV sedatives) with their increased risk."

The COS guidelines are echoed by the American Academy of Ophthalmology Preferred Practice Guidelines for Cataract in the Adult Eye. The anesthesia section states "Monitoring during administration of anesthesia and surgery generally includes electrocardiogram, pulse oximetry, blood pressure, and respirations. These should be performed by personnel (other than the operating ophthalmologist) qualified to monitor and manage the patient's status. These guidelines conclude that "given the lack of evidence for a single optimal anesthesia strategy for cataract surgery, the type of anesthesia management should be determined according to the patient's needs and the preference of the patient, the anesthesia professionals, and the surgeon." (6)

In one small retrospective study, oral lorazepam was used to achieve anxiolysis in lieu of IV sedation in carefully selected patients. Anxiolysis is defined by the American Society of Anesthesiologists as the use of a single oral sedative or analgesic medication administered in doses appropriate for the unsupervised treatment of insomnia, anxiety or pain. In this study, patients were closely monitored intra-operatively and an anesthesiologist was immediately

available if required. Attendance by an anesthesiologist was required in 1% of patients for intraoperative hypertension while another 1% of patients experienced moderate intra-operative adverse events (pain, nausea, dizziness or oxygen requirement) but did not require an anesthesiologist. (7)

Based on the evidence and consensus statements available, we recommend that the following requirements represent the minimum standard of care, with respect to sedation, for patients undergoing cataract surgery under topical anesthesia in the province of Ontario. Regardless of the choice of sedation technique, it is essential that the surgeon's main priority and point of focus at all times during cataract surgery is the surgery itself.

1. Sedation should be ordered by a most responsible physician. This may be a designated anesthesiologist or another physician who is adequately trained to provide sedation and respond to its complications.

2. If an anesthesiologist directs the sedation, they may be in constant attendance or may delegate the sedation to a trained anesthesia assistant in accordance with their professional standards and the recommendations of the Ontario ACT Implementation Advisory Committee.(8)

3. If another physician (other than the operating surgeon or an anesthesiologist) directs the sedation, they must be adequately trained as per the CPSO guidelines and be in constant attendance.

4. If the operating surgeon is the one administering the sedation, a dedicated health care professional, not assisting in the procedure, must be present to monitor the patient's vital signs during the surgery. Both the ophthalmologist and the designated individual must be trained to administer sedation and respond to its potential complications as per the CPSO guidelines. This would represent a significant change in scope of practice for most Ophthalmologists.

5. Rarely, some cataract cases will require general anesthesia and in those cases, appropriate arrangements must be made to ensure that a dedicated anesthesiologist is available.

6. If the operating surgeon, together with the consent of an informed and appropriately chosen patient, decides that it is safe to proceed without procedural sedation, with or without anxiolysis, dedicated monitoring personnel are not technically required according to the existing sedation guidelines, but patient vitals must still be monitored because of the nature of the surgical procedure. A dedicated individual, not assisting in the procedure, should still be available if needed, as the surgeon must focus on the cataract

surgery at all times. Policies and procedures must also be in place to deal with rare but possibly serious adverse events that can still occur.

In conclusion there are multiple viable models for administration of sedation for routine cataract surgery. There is no evidence to favor one over another. Local conditions and resources will determine which model(s) is/are to be used, recognizing that no single model is necessarily compatible with all surgical and patient situations. Individual patient preferences will also play a significant role in the selected strategy. Regardless of which model is employed, it must operate within the standards of the CAS, COS and CPSO. Anesthesia Care Team models should also follow the guidelines of the ACT Implementation Advisory Committee.

References

1) Out-of-Hospital Premises Standards. Published by the College of Physicians and Surgeons of Ontario. September, 2010. Pages 8, 20 and 27. 80 College Street, Toronto, ON M5G 2E2 .

2) Canadian Journal of Anesthesia. Guidelines to the Practice of Anesthesia Revised Edition 2012. Appendix 6. Page 3. Position Paper on Procedural Sedation: An Official Position Paper of the Canadian Anesthesiologists' Society.

3) Tantri A, Clark C, Huber P et al. Anesthesia monitoring by registered nurses during cataract surgery: assessment of need for intra-operative anesthesia consultation. J Cataract Refract Surg. 2006 Jul;32(7):1115-8.

4) Zakrzewski et al. Monitored Anesthesia Care Provided by Registeted Respiratory Care Practitioners during Cataract Surgery. A Report of 1957 Cases. Ophthalmology 2005; 112: 272-7

5) Canadian Ophthalmological Society evidence-based clinical practice guidelines for cataract surgery in the adult eye. Page 17. Vol 41:Suppl 1. October 2008.

6) American Academy of Ophthalmology Cataract and Anterior Segment Panel. Preferred Practice Pattern Guidelines. Cataract in the Adult Eye. Pg. 23. San Francisco, CA: American Academy of Ophthalmology: 2011. Available at: www.aao.org.ppp

7) Rocha G, Turner C. Safety of Cataract Surgery Under Topical Anesthesia With Oral Sedation Without Anesthetic Monitoring. Can J Ophthalmol. Vol 42: No 2; 2007, 287-294.

8) A Plan to Evolve the Anesthesia Care Team Model in Ontario - Report of the ACT Implementation Advisory Committee. November 24, 2009
http://www.crto.on.ca/pdf/Misc/Anesthesia_Care_Team_Ontario.pdf

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