Kalamazoo Anesthesiology Perioperative Eye Irritation Prevention and Treatment Guidelines

KAPC recognizes that medical practice including the prevention and treatment of perioperative eye irritation is not an exact or rigid science. Variations from these guidelines may be reasonable and expected based on the varying clinical situations faced in day to day anesthesia practice. It is also expected that based on new research and clinical practice recommendations, these guidelines may be updated or revised from time to time.

I. **Recognition of Significant Risk Factors:** KAPC recognizes that there are significant risk factors for perioperative eye irritation that are not directly related to anesthesia. And despite the appropriate employment of preventative measures, these patients will require postoperative treatment.

II. **Preventative measures**: Below are a number of measures that KAPC providers can employ alone or in combination depending on each clinical case:

A. **Pre-operative**:

1. **Provider education**. KAPC's performance improvement initiative will involve baseline education and e-mail notification of providers whose patients develop perioperative eye irritation (with perioperative eye irritation educational material linked to the e-mail notification). This will be performed by the KAPC administrative staff and physician's assistants.

2. **Completely securing the eyelids closed with or without lubricant during general anesthetics**.

3. **Completely securing the eyelids closed whenever possible prior to airway manipulation during general anesthesia**.

4. **Lubricants and/or contact lenses during general anesthesia when eye taping not possible**. Note – In cases where lubricants are the primary protective measure, consider re-applying lubricant when possible every two hours.

B. **Post-operative**: When possible, **place pulse oximeter in post-anesthesia care unit on digits other than the first or second digit**.

III. Post-operative treatment options: Depending on the clinical situation, single agent treatment or combination treatments are appropriate options.

A. **No treatment**: No treatment is a reasonable option for patients with minimal symptoms or who refuse treatment. Minor irritation and even small corneal abrasions often do not need treatment and most of these patients can be reassured that their symptoms should resolve completely with or without treatment within 24-72 hours.

B. Topical Analgesics: **CHOOSE ONE:**

1. **Diclofenac (Voltaren) 0.1% solution, One drop prn pain up to four times daily**. **Note**: Caution in patients with bleeding tendencies.
2. **Ketorolac (Acular) 0.5% solution, One drop prn pain up to four times daily**. **Note**: Caution in patients with contact lenses.

C. **Oral Analgesics**: Because most cases of perioperative eye irritation heal without significant long-term complications, pain relief should be the primary concern and the justification for the routine use of non-narcotic oral analgesics. Individual patient characteristics (e.g., age, concomitant illness, drug allergy, ability to tolerate Acetaminophen or NSAIDs), should guide therapy.

1. **Acetaminophen 500 – 1000 mg p.o. prn pain up to four times daily**.

2. **Ibuprofen 600 mg p.o. prn pain up to three times daily**. **Note**: Topical NSAIDs, if used four times daily can give low systemic levels of NSAID's. Hence, the recommendation to use ibuprofen three times daily. Also, use with caution in patients with renal dysfunction.

D. Topical Antibiotics

1. Most patients with perioperative eye irritation who are found to have corneal abrasion do not develop infection following an uncomplicated corneal abrasion. However, topical erythromycin and chloramphenicol are low risk treatments and reported to be soothing to the eye. In addition, there are **two groups of patients in whom KAPC providers will consider antibiotic prophylaxis**:

   a. **Patients whose symptoms don't improve after 24 hours or whose symptoms continue after 72 hours.**

   b. **Patients with following the conditions: Consider using topical Ofloxacin which has anti-pseudomonal activity**.

i. **Patients with previous external eye pathology/surgery/trauma.**
ii. **Patients who wear contact lenses.**
iii. **Immunocompromised patients.**
iv. **Mechanically ventilated patients.**

2. **Antibiotic options**:

a. **Erythromycin 0.5% ointment, ½ ribbon at HS and prn up to four times daily**. Note – Best tolerated antibiotic – ointment is soothing enough that many patients don't need any further topical NSAID's after the initial placement.
b. **Chloramphenicol (Chloroptic) 1% ointment**, **two drops every three to six hours.** Best option for erythromycin allergic patients.
c. **Ofloxacin (Ocuflox), 0.3% solution, One to two drops four times daily**. **Note**: Recommended for patients with previous eye pathology, immunocompromised patients, ventilated patients, and patients wearing contact lenses.

E. **Eye patching**:

1. In routine situations, eye patching is not recommended.
2. However, for patients who experience eye pain during treatment due to supplemental oxygen therapy or who need the patch for eye protection during transfer to home from outpatient surgery, or protection from upper extremity hardware, a patch may be reasonable if antibiotic ointment and analgesics don't adequately blunt the symptoms of perioperative eye irritation in these cases. Instruct patient to remove patch as much as possible while at rest, at night, and when supplemental oxygen no longer used or minimized.

IV. Consultation: KAPC providers may consider ophthalmology consultation in the following situations:

A. **Patients with previous external eye pathology, history of external eye surgery, or history of eye trauma**. These patients may require longer-term observation and or antibiotic treatment.
B. **Patients wearing contact lenses**: Persons who wear contact lenses are at higher risk of developing abrasions that become infected and ulcerate. Soft, extended-wear lenses have been associated with a 10-fold to15-fold increase in ulcerative keratitis. Consider instructing the **patient to be**

evaluated by their eye care physician prior to reinitiating use of contact lenses.

C. **Immunocompromised patients**. These patients may be at increased risk for pseudomonal infection, and therefore require longer-term observation and or antibiotic treatment.
D. **Patients with monocular vision**: May be beneficial to consult immediately so that a gas permeable contact lens can be placed for protection and symptomatic relief, allowing the patient to maintain vision during treatment.
E. **Ventilated patients:** These patients are also at increased risk of pseudomonas infection. In any ventilated patient with previously unrecognized eye discharge consideration should be given to ophthalmology consult.
F. **In patients whose symptoms are not significantly improved after 24 hours, or the patient has continued symptoms after 72 hours**. This may be a sign of a very large corneal abrasion, or possibly other eye pathology that needs to be evaluated.

V. Patient follow-up

A. The KAPC Perioperative Eye Irritation Follow-up Form will be used on each patient reporting perioperative eye irritation. When follow-up is completed, the form will be sent to the KAPC offices for further notification of the involved providers.
B. Patients who report perioperative eye irritation will be followed up by either the KAPC anesthesiologists or the KAPC physician's assistants under the supervision of the KAPC anesthesiologists.
C. It is recognized that perioperative eye irritation (including conjunctivitis and corneal abrasion) is rarely an ophthalmologic emergency, and therefore, except in rare instances, follow-up consultation can and will be arranged during regular daytime hours on weekdays.

VI. Provider Notification

Provider notification will occur in the form of e-mail notification and/or phone notification by the KAPC administrative staff or on-call physician or physician's assistant.