

Mock IACUC Meeting Scenario

Rabbit intraocular lens implant (IOL) study

This study will evaluate a novel IOL that uses new technology that allows for additional flexibility of the implant. This flexibility will allow for better vision in humans after implantation subsequent to cataract removal as the lens will be able to bend and flex more naturally with the movement of ocular muscles. Rabbits are the species of choice as they are required by US FDA and ISO 11979 and 10993 guidelines for the evaluation of IOLs. This study is also being used to evaluate a newly acquired phacoemulsification unit. Because the use of phacoemulsification is new for this lab, the first rabbit surgery will be considered to be training.

Prior to anesthesia, glycopyrrolate (100 mg/kg SC) will be administered approximately 15 minutes prior to anesthesia. Rabbits will be anesthetized with a ketamine/xylazine IM (2 cc/3 cc), and isoflurane (approximately 2% inhalation via a mask) will be utilized only if necessary. Intraoperative monitoring will be performed in accordance with the IACUC's policy on large animal surgery and post-operative care.

The surgery will involve an approximate 2-3mm corneal incision followed by phacoemulsification of the lens. The lens will be removed after emulsification using appropriate suction and replaced with the experimental lens. In cases where a larger incision needs to be made to facilitate lens implantation, the incision may be closed with 10-0 PDS suture in a simple interrupted pattern. Both eyes will receive implants during the surgical event.

Buprenorphine, ophthalmic steroids, and ophthalmic antibiotics will be administered post-operatively.

Animals will be re-anesthetized at 7 days, 4 weeks, 3 months, and 6 months after surgery using the same anesthetic regimen as described above. While anesthetized, the animals will be subjected to the following ocular exams to ensure that the lens has not dislodged and healing is progressing normally:

- Direct Ophthalmoscopy
- Indirect Ophthalmoscopy
- Slit Lamp Biomicroscopy
- Ocular Photography

Six months after the surgery, the animals will be humanely euthanized with an intravenous dose of a barbiturate solution as provided by the Animal Resource Center. Both eyes will be harvested after the animals have been euthanized and submitted for histopathology.

- 1) What are the issues, concerns, or deficiencies you can identify in the scenario that should be addressed to ensure minimization of pain and distress? Please write these down.
- 2) When you convene as a group, each trainee will select one concern and articulate its significance for the minimization of pain and distress.
- 3) After each trainee has discussed their one concern, the facilitator will call for group discussion to review any additional concerns or debate concerns that were previously identified.
- 4) At the conclusion of the group discussion, provide your initial list of issues, concerns, or deficiencies to the facilitator.

Key for the Facilitator (this key would not be given to trainees)

This scenario is scientifically sound but purposefully contains inaccuracies or omissions that should trigger new IACUC member comments. The comments can be made as comments or be phrased as specific questions, depending on how the Facilitator wishes to train the new members. A listing of the most easily identifiable concerns/deficiencies/issues is provided here but should not be considered complete due to institutional preference and policies.

- No discussion of pre-operative analgesia
- Incorrect ketamine/xylazine injection dose
- Definition or better description of phacoemulsification
- No provision for topical ocular anesthetics
- No dosages and administration time frames for post-operative drugs
- Concern with use of new equipment and a new surgical technique
- Adequacy of the IACUC policy adequate for ensuring appropriate intraoperative care and prevention of self-injury post-operatively
- No discussion of potential complications of the surgery and associated humane endpoints
- Potential for pain and distress from ocular exams and repeat anesthetic events
- Potential for distress with bilateral implants
- Dose of euthanasia solution and clarification regarding euthanasia while under anesthesia
- Anything else?