

Practical Aspects of Lab Animal Anesthesia – Small to Large Animals



Cholawat Pacharinsak DVM, PhD, DACVAA
Comparative Medicine, Stanford University
cholawat@stanford.edu

- Neuroleptanalgesia: Opioids + sedatives
- Preventive analgesia: Provide analgesics throughout the procedures
- Multimodal analgesia & balanced anesthesia



Anesthetic Considerations

- General anesthesia effects
 - CV, Resp., CNS depression
 - Alterations: Blood gas, metabolism, hormone, thermoregulation, tissue perfusion
- Plan: pre-, peri-, post-op

Rodents

- Pilot studies
- Gas vs. injectable anesthesia
- Injectables – redosing 1-2 times
 - 1/3-1/2 of ketamine
 - 1/3-1/2 of combination
- Monitoring
- Reverse?



Mouse

Head implantation (survival)
Duration ~ 30 min

- | | |
|---|--|
| ▪ Premed/induction:
Ketamine/dexmed +
Buprenorphine | ▪ Premed/induction:
Isoflurane +
Buprenorphine |
| ▪ Line block:
Bupivacaine | ▪ Line block:
Bupivacaine |
| ▪ Maintain: O ₂ | ▪ Maintain: Iso/O ₂ |
| ▪ Post-op:
Buprenorphine SR | ▪ Post-op:
Buprenorphine SR |

Large Animals

- Considerations
- Health status
- Sheep vs. pigs
 - Sheep
 - Large quantity of ingesta
 - Regurgitation, aspiration
 - Tympany
- Salivation

Sedation - Sheep

Xylazine 0.05-0.1 + butorphanol 0.05-0.5 mg/kg

Detomidine 10-20 ug/kg + butorphanol 0.05-0.5 mg/kg

Diazepam 0.1-0.5 + butorphanol 0.05-0.5 mg/kg

Telazol 4-6 mg/kg

Anesthesia - Pigs

Telazol 4-6 mg/kg

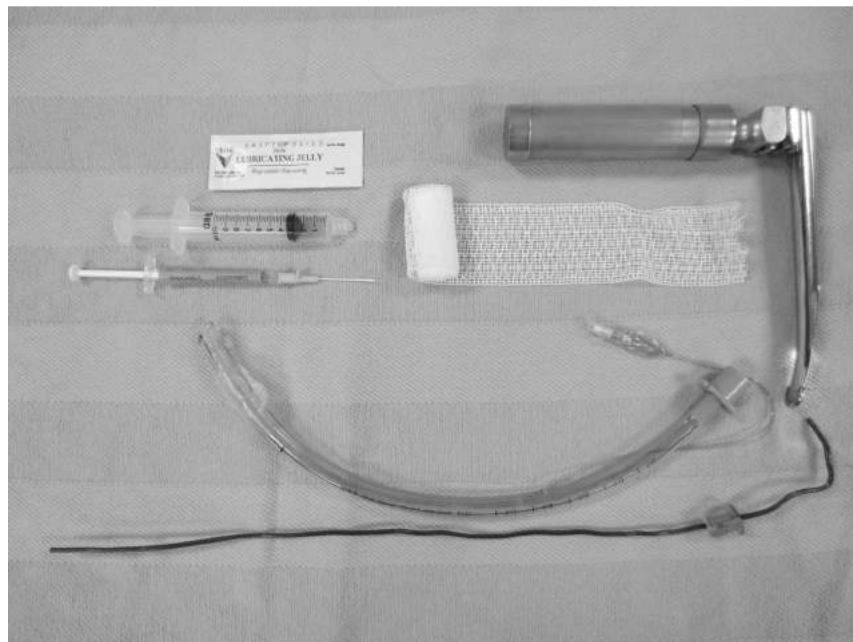
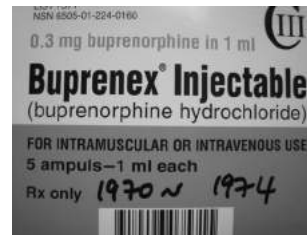
Telazol + ketamine 2.5 cc + Xylazine 2.5 cc
(0.02-0.07 cc/kg)

Ketamine 5 mg/kg + Dex 25 ug/kg
+ Butorphanol 0.2 mg/kg



Thoracotomy (pig)

- TKX + buprenorphine
- Bupivacaine
- Isoflurane
- Lidocaine IV
- Post-op:
Buprenorphine SR +
carprofen 2-3 days



Neuroleptanalgesia
Preventive analgesia
Multimodal analgesia
Balanced anesthesia
Monitoring

