

# Clinical Study to Assess the Level of Consciousness/General Anesthesia Following the Administration of High Doses of Xylazine Hydrochloride in Cattle

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### Summary and Implications

Xylazine hydrochloride (XH) does not induce anesthesia in cattle. Thus, XH-KCl combination is not appropriate for bovine euthanasia.

### Introduction

Achieving anesthesia without DEA controlled drugs prior to administration of IV potassium chloride (KCl) is a limiting factor for humane euthanasia. An overdose of xylazine hydrochloride (XH) is thought by some to induce unconsciousness and is commonly administered prior to IV KCl injection. This study's purpose was to determine the level of unconsciousness achieved from an overdose of XH in cattle.

### Materials and Methods

Six yearling (500-840 lbs) beef cross calves were enrolled. Five hundred mg of XH was administered at T=0, an additional 500mg at T=5 minutes, and 1000mg at T=10 minutes. Brain activity was monitored using 12 channels of EEG. Two channels of electrocardiographic monitoring (ECG) monitoring were applied. Other parameters measured at each time point included: respiratory rate and character eye reflexes, jaw tone, temperature, presence of gag reflex, seizure activity, vocalization, recumbency, and eye globe position. Analysis of variance and descriptive statistics were used to measure differences in recorded variables between T=0, 5 and 10.

### Results and Discussion

The use of an overdose of XH did not induce a surgical plane of anesthesia in any study cattle. We conclude that it is unlikely unconsciousness can be achieved even when using very high doses of XH. Therefore, the use of the XH-KCl combination for euthanasia of cattle cannot be recommended.

### Acknowledgements

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Xylazine hydrochloride being administered IV to calf.



Allie Ludwig (pre-vet student) prepares EEG monitoring equipment with Drs. Luciana Bergamasco (Virginia Polytechnic Institute and State University) and Reneé Dewell.



Depth of anesthesia being monitored by Michelle Christianson (VM student).