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Pain Management For Sows

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Objectives

• Driving force of change
• Current swine industry challenges
• Defining pain
• Pain management
• Regulatory challenges for using drugs to alleviate pain
Driving Force For Change

• Increased public concern for farm animal health, welfare and management
  – 81% agree “farm animals have roughly the same ability to feel pain and discomfort as humans”\(^1\)
  – 83% agree “it is wrong to cause farm animals any pain, injury or stress”\(^2\)
  – 76% state the animal welfare considerations are more important than product price\(^3\)

\(^1\)Bennet et al, 2002 \(^2\)Rauch and Sharp, 2004 \(^3\)Lusk et al, 2007
Swine Industry Challenges

1. Recognizing pain is difficult in swine
2. No pain relieving drugs specifically approved by FDA for use in food animals in the U.S.
3. Administration may be difficult, require multiple administrations and require additional training
4. Unclear if health and performance benefits can offset treatment cost
5. Need for continued research to measure efficacy of drugs to control pain
Defining Pain

Pain: “Unpleasant sensory and emotional experience associated with actual or potential tissue damage”

- Pain and suffering are clinically important conditions adversely affecting an animal’s quality of life (short-term or long-term)
- Prevention and alleviation of animal pain and suffering (i.e., management) are important goals

IASP, 2004
Painful Events

- Procedures
  - Surgeries
    - Repairs
    - Reproductive
  - Shoulder ulcers
  - Heal erosions
  - Lacerations
  - Fractures
  - Tail/vulva bites

- Management
  - Lameness
  - Mastitis
  - Farrowing difficulties
  - Respiratory disease
Manage Pain On Farm

Husbandry Techniques

Pharmacological Techniques
Husbandry Techniques

• Facilities

• Nutritional support

• Concurrent treatment
Facilities

Hospital pen: A pen in which compromised pigs can be housed

• Removal from competitive environment
  – Easier access to feed/water
  – Reduce bullying/risk for injury
  – Reduce source of infection to other pigs

• Single pens or boar pens preferable for sows due to aggressive group interactions\textsuperscript{5}

\textsuperscript{5}White, 2010
Facilities

Features of a hospital pen:
1. Floor must be dry, warm and non-damaged
2. Clean and have cleanable surfaces
3. Easy access to food and water with low competition levels
4. Isolated from other healthy sows
5. Able to assess and treat individual sows daily
Facility Example

Pain associated with lameness in sows

• Addition of rubber mat to stall:
  – Sows on rubber slat mats had a reduced risk of lameness
  – Performed more lying behavior when mat was present
  – Sows stood up and laid down more frequently

Calderon Diaz et al, 2013  Elmore et al, 2010
Nutritional Support

- Acute and chronic illness
  - Reduced feed and water intake
  - Slow growth
  - Inefficient conversion of feed to product

- Specific disease processes can benefit from nutritional support

\(^8\)Johnson, 1998
Concurrent Treatment

- Early identification and timely response to issue
- Appropriate diagnostic evaluation if needed
- Treatment

Disease

- Lameness
- Mastitis
- Farrowing difficulties
- Respiratory disease
Timely Decisions For Compromised Animals

- Animals that are beyond recovery may continue to experience pain and suffering regardless of treatment

- When the animal no longer
  - Functions well
  - Feels well
  - Has the capacity to perform natural behaviors

- Euthanasia does NOT imply failure

- Not performing euthanasia when it is needed IS a failure
Pharmacological

• Anesthetics
  – Topical
  – General

• Sedatives/Tranquilizers

• Analgesics
  – NSAIDs
  – Opioids
Anesthetics

Local

• Most commonly used pain relieving drug in food animal medicine\(^9\)

• Produces loss of sensation without loss of consciousness by preventing and blocking nerve impulses
  – Lidocaine/Prilocaine
  – Ethanol\(^{10}\)

\(^9\)Muir et al, 1995, \(^{10}\)Tapper et al 2011
Sedatives or Tranquilizers

• Do not provide pain relief but can be used in combination with other drugs to manage pain

• Anti-panic or sedative properties
  – Xylazine
  – Acepromazine
  – Azaperone
Analgesics

Non-steroidal anti-inflammatory drugs (NSAIDs)

Flunixin meglumine

Meloxicam

Ketoprofen

Aspirin
Experimental design

• 162 pigs - clinical signs Porcine respiratory disease complex (PRDC)

• Treated for 8 consecutive days with chlortetracycline (CTC) in feed

• Treatments
  – Control pigs : Single saline injection
  – Meloxicam pigs: 0.4 mg/kg meloxicam IM

Treatments administered on day 0 of antibiotic administration
Measurements

• **Mean respiratory score (RS)** was scored on a scale of 0 (absence of clinical signs) to 3 (abdominal breathing and generally poor condition).

• **General health status (GHS)** was scored on a four-point scale (0 = normal general condition and absence of clinical signs → 3 = poor general condition and retarded growth).

• **Clinical index score (CIS)** was the total of RS and GHS scores.
Results

• Average daily respiratory score in the Meloxicam group was lower than control group at 93-97 days of age

• Mean Respiratory score was lower in Meloxicam group than control group

• Clinical index score was lower in the Meloxicam group than in the Control group
Results

• More pigs in the control group received:
  – Additional injectable medications

• Pigs in the control group had a higher mortality rate
Currently, there are no compounds approved to provide pain relief in swine in the U.S.
Regulatory Concerns

• Animal drugs intended for use in the U.S are regulated by Food and Drug Administration (FDA) Center for Veterinary Medicine (CVM)\textsuperscript{12}

• There are no pain relieving drugs specifically approved by FDA for use in livestock in the U.S.\textsuperscript{13}

• Extra-label drug use (ELDU) is regulated under the Animal Medicinal Drug Use Clarification Act of 1994 (AMDUCA)

\textsuperscript{12}Smith and Modric, 2013 \textsuperscript{13}Coetzee, 2011
Regulatory Concerns

• Requirements:
  – Prescribed by the lawful written or oral order of a licensed veterinarian
  – Valid veterinarian-client-patient relationship
  – Maintain drugs in safe locked compartment to prevent misuse or abuse
Summary

• 3S approach to minimize pain¹⁴:

1. Suppress any source of pain that brings no obvious advantage to the animals or producers

2. Substitute a technique causing pain by another less-painful method

3. Soothe pain using treatment in situations where pain is known to be present

¹⁴Guatteo et al, 2012
THANK YOU VERY MUCH FOR YOUR ATTENTION

QUESTIONS?
References

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