Protocol:

Management of Adverse Reactions Following Intra-Articular Injections in Equine Patients

1. General Principles

Adverse reactions following intra-articular (IA) injections are uncommon but can occur with any injectable product (e.g. biologics, hydrogels, corticosteroids, antimicrobials, regenerative therapies). These reactions may include transient pain, oedema, or joint effusion. It is essential to differentiate non-septic inflammatory reactions from septic arthritis, as management strategies differ significantly.
All cases should be monitored closely following IA administration, and owners should be informed of potential risks prior to treatment.

2. Clinical Presentation

·Mild reactions (common): transient discomfort, low-grade swelling, warmth at the injection site, resolving spontaneously within 1–2 weeks.

- Moderate to severe reactions (rare): marked lameness, joint effusion, systemic signs (fever, inappetence), increases in SAA (serum amyloid A) but improving levels with resolving clinical signs.
- Septic arthritis (very rare): acute onset severe lameness, persistent heat/swelling, systemic illness, high and increasing SAA (serum amyloid A) levels, positive synovial fluid cytology and culture.

3. Initial Assessment

·Full clinical examination with lameness grading.

- Assess for systemic signs (pyrexia, depression).
- Perform synoviocentesis where indicated:
  - Gross appearance of fluid
  - Cytology and protein content
  - Culture and sensitivity (if sepsis suspected)

Important: Exclusion of sepsis is a priority before instigating conservative management.

4. Management of Non-Septic Inflammatory Reactions

Where infection has been excluded, treatment should be conservative and aimed at reducing inflammation and pain.

.1 Medical Therapy

- NSAIDs – initial intravenous therapy will be beneficial for most horses. Ongoing oral administration is also likely to be required (select one or combination as clinically indicated):
  - Flunixin 1.1mg/kg PO BID
  - Firocoxib 0.1 mg/kg PO SID
  - Phenylbutazone 2.2 mg/kg PO BID
  - Meloxicam 0.6 mg/kg PO BID
  - Paracetamol 20-30 mg/kg PO BID (horses, off-label)

- **Duration:** typically, 5–10 days at a tapering dose regime (may be extended up to 14 days in persistent cases).
- **Antibiotics:** administration of systemic antibiotics may be considered on an individual case basis until sepsis has been excluded (e.g. penicillin/gentamicin combination or Oxytetracycline). If sepsis has been ruled out, the use of intra-articular antibiotics would not be recommended.
- **Corticosteroids (systemic or regional application -** reserved for more severe reactions):
  - Dexamethasone: 0.1-0.2mg/kg BW IV once (case dependent)
  - IVRLP (Intravenous Regional Limb Perfusion): total volume of perfusate site/joint dependent. General guideline – 10mg Dexamethasone, ± 40–50 mg mepivacaine in 20-30 ml of saline, repeated at 24–48 hour intervals (for 3-5 treatments). The administration of morphine via IVRLP may be beneficial in providing additional analgesia in select cases.
- **Adjunctive analgesia:** parenteral opioids or Fentanyl patches could be utilised in severe cases.

4.2 Supportive Measures

- Rest and restricted exercise.
- Cold therapy: cold hosing, ice bandaging.
- Topical NSAIDs.
- Supportive care of contralateral limb if weight-bearing compromised.

5. Management of Suspected Septic Arthritis

- Immediate initiation of broad-spectrum systemic antibiotics pending culture and sensitivity results.
- Consider joint lavage (arthroscopic or needle flush) in acute cases (<7 days).
- Avoid unnecessary repeat intra-articular medications until sepsis is controlled.
- Referral to a specialist facility is strongly recommended.

6. Owner Communication

·Discuss expected time course for resolution of mild inflammatory reactions (up to 2 weeks).

- Explain red-flag signs requiring urgent re-examination: severe worsening lameness, persistent heat/swelling, systemic illness.
- Document treatment decisions and rationale in clinical records.

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7. References

1. Lowe et al., 2024.
2. Foreman J.H., 2017. A review of objective assessments of orthopaedic analgesic efficacy of NSAIDs in horses. Comp Exerc Physiol, 13(3):195–204.
3. Pezzanite et al., 2021. Management of equine septic arthritis. Front Vet Sci.
4. Witt S. et al. 2024. Climate & Climatic Variations – Impact on Lymphoedema: Patient Perspective. Lymphatics 2(2): 119-132.