Corticosteroid shots and knees: A match made in osteoarthritis heaven?

Clinical Question: What is the effectiveness of intra-articular corticosteroid injections in knee osteoarthritis?

Bottom Line: Corticosteroid intra-articular knee injections reduce osteoarthritis pain ~40% more than placebo and one in every 3-5 patients injected will have global symptom improvement in the first four weeks. Long-term pain relief is less certain but serious adverse events, like joint infection, are very rare (one in >14,000).

Evidence:
- We found six systematic reviews,1-6 each with 5-13 Randomized Controlled Trials (RCTs) and 207-648 patients total. Comparing corticosteroid (triamcinolone 20-40 mg most common, methylprednisolone 40-120 mg next most common) to placebo injections.
  - Pain: On a 100 point Visual Analogue Scale (VAS) steroids statistically significantly reduced pain (from ~54 baseline)4 more than placebo:
    - 21-22 points lower at one week,1,2 16.5 points lower at two weeks,3 7.4 points at 3-4 weeks.1
    - Average ~15 points better between 1-4 weeks.4
    - At later time points, difference is non-statistically significant.1
    - Maximal effect may occur at 1.5 weeks.4
  - Pain: Hitting a particular pain reduction target or global improvement:
    - 74-78% for steroid vs. 45-54% placebo.1-3
    - Number Needed to Treat (NNT)=3-5, at 1-4 weeks.1-3
    - Results at >4 weeks inconsistent: Two found no effect,1,2 one reports NNT=5 at 16-24 weeks.3
  - Function and stiffness not reliably changed.5
  - Issues: Included RCTs were frequently small (≤50) and often short (example one week). Pooled results also often included few studies and lacked power.1-6

Context:
- Overall, corticosteroid injections may be most efficacious therapies for knee osteoarthritis in the first 1-4 weeks.4,5
- Unclear if one type of steroid better than another.7
• Maximum frequency \(\sim 4/\text{year}\).
  o RCT injected steroids \(4x/\text{year}\) for two years without any harms.\(^8\)
  o Cohort of \(\geq 4\) injections/\(\text{year}\) found no harm.\(^9\)
• Which clinical features influence success is unclear\(^10,11\) but increased radiographic severity may reduce effectiveness while increased clinical severity (pain and stiffness) may improve effectiveness.\(^10\)
• Risk of joint infection one in 14,000-77,000 following intra-articular injection.\(^12\)
• Guidelines generally recommend corticosteroid intra-articular injections,\(^13,14\) although uncertainty (due to insufficient long-term evidence) remains.\(^15\)

Authors:
Jeff Jamieson MD, G Michael Allan MD CCFP

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Authors do not have any conflicts to disclose.

References:
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