Knee Arthroscopy in Osteoarthritis

You wouldn’t like me when I’m angry...

Because I always back up my rage with facts and documented sources.

-The Credible Hulk
Disclaimer…

• My Orthopaedic practice is predominately (>85%) arthroscopy of the Shoulder and Knee (i.e. Arthroscopic reconstructions knee & shoulder, arthroscopic R.C. repairs, ACJ Reco, meniscus etc.)
Some Questions will remain unanswered

If a dog wore pants would he wear them like this or like this?
Recent Media

- Arthroscopy BAD
- Never agree to it !!
- Other treatments are better – physical therapy, tablets, stem cells etc.
- Greedy surgeons
The truth

- Knee arthroscopy primary intervention for meniscal pathology (no severe OA), reconstruction, focal chondral injury, patello-femoral disorders (refractory to conserv Tx)…
What about the I.A. Steroids?

- Conchrane Database:
- 27 Randomised trials
- Summary:
- Steroid: 44% found benefit at 3 months (3 point benefit in pain score 0-10)
- Placebo: 33% found benefit at 3 months (2 point benefit in pain score 0-10)
- 13% experiences side effects with steroids vs. 15% with placebo !!!!
Cochrane Conclusion-

• …An analysis of multiple time points suggested that effects decrease over time, and our analysis provided no evidence that an effect remains six months after a corticosteroid injection.”
How about Viscotherapies?

• Very poor evidence (due to lack of good studies!!)
• Overall, the analyses performed are positive for the HA class and particularly positive for some products with respect to certain variables and timepoints, such as pain on weight bearing at 5 to 13 weeks postinjection.
Acupuncture?

- COCHRANE: “…Sham-controlled trials show statistically significant benefits; however, these benefits are small, do not meet our pre-defined thresholds for clinical relevance, and are probably due at least partially to placebo effects from incomplete blinding”
Physical Therapy?

- COCHRANE: “…We found very low-quality to low-quality evidence for no important clinical benefit of high-intensity compared to low-intensity exercise programs in improving pain and physical function in the short term. There was insufficient evidence to determine the effect of different types of intensity of exercise programs.”
Glucosamine?

- CONCHRANE: “…Pooled results from studies using a non-Rotta preparation or adequate allocation concealment failed to show benefit in pain and WOMAC function while those studies evaluating the Rotta preparation showed that glucosamine was superior to placebo in the treatment of pain and functional impairment resulting from symptomatic OA.
Orthotics?

• COCHRANE: “...Evidence was inconclusive for the benefits of bracing for pain, stiffness, function and quality of life in the treatment of patients with medial compartment knee OA. On the basis of one laterally wedged insole versus no treatment study, we conclude that evidence of an effect on pain in patients with varus knee OA is lacking”
So... Let's talk about arthroscopy in the management of OA

• For the purposes of this discussion – at least grade 3-4 (using Xray rather than arthroscopy grading system as you shouldn’t be there in the first place!!)

• The Kellgren and Lawrence system
  • grade 0: no radiographic features of OA are present
  • grade 1: doubtful joint space narrowing (JSN) and possible osteophytyic lipping
  • grade 2: definite osteophytes and possible JSN on anteroposterior weight-bearing radiograph
  • grade 3: multiple osteophytes, definite JSN, sclerosis, possible bony deformity
  • grade 4: large osteophytes, marked JSN, severe sclerosis and definite bony deformity
What is the goal?

- Chondral flaps
- Meniscal pathology
- “washing out” those bad cytokines
- “washing out” debris
The Evidence

• **Moseley : No real benefit**

The Evidence… (Cochrane, Medline)

- Level 1: 1 Study (Moseley)
- Level 2: 5
- Level 3: 6
- Level 4: 6
Microfracture in OA?

- Level 1: 0
- Level 2: 0
- Level 3: 0
- Level 4: 5
• 126 patients who had failed conservative Tx
• 53% female
• 61 yrs +- 9yrs
• Grade 3/4 Dougados system
• Level 4 evidence
• 44% had some reduction in pain (WOMAC) BUT...
• this is Level 4 evidence with just over 50% agreement between clinicians
BMJ Meta-analysis

- Eligibility: Randomised controlled trials comparing surgery vs conservative Tx.
- No age restrictions
- Only studies published after 2000
Data extraction

• Pre-specified outcomes – pain and physical function
• Looked at only DVT, PE, infection and death as complication profile
• 1789 reports on literature search – 9 reports included only
Therefore 9 trials...

- 1270 patients
- Mean age ranged from 49.7 to 62.8 in 9 studies
- Follow up 3m - → 24 months
Results...

• PAIN

• Small effect (2.4/100 on Visual Analogue scale) at 3 months, 6 months

• No difference after 6 months
Physical Function

• No difference
## Risks

<table>
<thead>
<tr>
<th>Adverse event</th>
<th>No of studies (No of patients/procedures)</th>
<th>No of adverse events per 1000* (95% CI)</th>
<th>$I^2$ (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deep venous thrombosis</td>
<td>5 (432 663)</td>
<td>4.13 (1.78 to 9.60)</td>
<td>98.3</td>
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<tr>
<td>Pulmonary embolism</td>
<td>6 (736 823)</td>
<td>1.45 (0.59 to 3.54)</td>
<td>98.6</td>
</tr>
<tr>
<td>Venous thromboembolism</td>
<td>6 (571 793)</td>
<td>5.68 (2.96 to 10.9)</td>
<td>99.3</td>
</tr>
<tr>
<td>Infection</td>
<td>4 (946 230)</td>
<td>2.11 (0.80 to 5.56)</td>
<td>99.6</td>
</tr>
<tr>
<td>Death</td>
<td>2 (106 967)</td>
<td>0.96 (0.04 to 23.9)</td>
<td>90.3</td>
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</tbody>
</table>
Weakness

• Poor definition of grade of OA
• Some had no radiographic evidence of OA
• Therefore – probably just useful for risk of harm
I am not going to bore you with studies, but,

- The OA Research Society International (OARSI) has published global, evidence-based, consensus recommendations for the treatment of OA of the hip and knee. Of the 51 modalities of treatment addressed in the OARSI recommendations, 35 have been systematically reviewed including a wide range of nonsurgical methods (e.g., physiotherapy, bracing, education, weight reduction, viscosupplementation, corticoid injections, analgesia, other anti-inflammatory treatments, etc.).
OARSI Guidelines for the Non-surgical Management of Knee OA

Core Treatments
Appropriate for all individuals
- Land-based exercise
- Weight management
- Strength training
- Water-based exercise
- Self-mgmt and education

Recommended treatments*
Appropriate for the following OA types:

Knee-only OA without co-morbidities
- Biomechanical interventions
- Intra-articular Corticosteroids
- Topical NSAIDs
- Walking Cane
- Oral COX-2 Inhibitors (selective NSAIDs)
- Capsaicin
- Oral Non-selective NSAIDs
- Duloxetine
- Acetaminophen (Paracetamol)

Knee-only OA with co-morbidities
- Biomechanical interventions
- Walking Cane
- Intra-articular Corticosteroids
- Topical NSAIDs

Multi-joint OA without co-morbidities
- Oral COX-2 Inhibitors (selective NSAIDs)
- Intra-articular Corticosteroids
- Oral Non-selective NSAIDs
- Duloxetine
- Biomechanical interventions
- Acetaminophen (Paracetamol)

Multi-joint OA with co-morbidities
- Balneotherapy
- Biomechanical interventions
- Intra-articular Corticosteroids
- Oral COX-2 Inhibitors (selective NSAIDs)
- Duloxetine

* OARSI also recommends referral for consideration of open orthopedic surgery if more conservative treatment modalities are found ineffective.
The media and the “big one”

- A controlled trial of arthroscopic surgery for osteoarthritis of the knee.
• 180 patients received either arthroscopic debridement, arthroscopic lavage or placebo surgery
• 2 yrs
• Blinded
• 5 self reported scores, 1 functional (stair climbing, walking)
The patients

- <75 yrs
- Veterans Hospital
- Severity graded 0-4 for 3 compartments then added -> 9/12 = severe OA
- Almost all were men !!
- Exclusions: severity >9, sick, severe deformity
- Osteoarthritis: 1 Non-Standing non-weightbearing XRAY
• Patients had moderate knee pain
• 44% REFUSED to participate
• (the patients who agreed were younger, with more severe arthritis)
1. Lavage: 10 litres only
   If any buckethandle meniscus – WAS debrided
2. Debridement: Lavage 10L fluid.
   Chondroplasty, meniscus trimmed (no microfracture), tibial spine spurs removed
3. Placebo: 3 * 1cm incisions
• At no point did any intervention group report better scores than placebo

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<tr>
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<th>1 yr (knee specific pain scale)</th>
<th>2 yrs</th>
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<tbody>
<tr>
<td>Placebo</td>
<td>48.9 +/- 21.9</td>
<td>51.6 +/-23.7</td>
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<tr>
<td>Lavage</td>
<td>54.8 +/-19.8</td>
<td>53.7 +/-23.7</td>
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<tr>
<td>Debridement</td>
<td>51.7 +/-22.4</td>
<td>51.4 +/-23.2</td>
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Other issues with study

• Moseley Didn’t define well what is meant by debridement
• - Cutting the grass? Down to bone?
What is Debridement?
What it is not...
To be fair..

• There may be a case by case indication for addressing meniscal tears when clinical symptoms are suggestive and arthritis not end stage
Issues with Arthroscopy

• Poor cost effectiveness
• Risk Profile
• Mild/no long term benefit (2 yrs)
So then, if there is no evidence for arthroscopy what do we do?

- Risk vs. benefit: Although no proven benefit of anything, other therapies don’t have significant risk factors
Thank you