## Tables

**Table 1**. Characteristics of trials included in OA Trial Bank for IA glucocorticosteriod injections

| | N at baseline | Type of OA | Glucocorticosteriod intervention | Control interventions | Outcomes | Inflammation | Follow-up |
|---|---|---|---|---|---|---|---|
| **Arden et al. 2008** | 150 | Knee | 40mg triamcinolone acetonide and 2ml lignocaine (n=79) | 1. Tidal irrigation (n=71) | - Pain (VAS)<br>- WOMAC pain<br>- WOMAC physical functioning<br>- WOMAC stiffness<br>- WOMAC total<br>- Global assessment (5 pt Likert) | Presence of effusion by physical examination (small/moderate/large) | 2, 4, 12 and 26 weeks |
| **Atchia et al. 2011** | 77 | Hip | Methylprednisolone acetate (depomedrone) 3ml/120mg (n=19) | 1. Placebo (3mg saline) (n=19)<br>2. Standard care (n=20)<br>3. Hyaluronic acid (durolane) 3ml/60mg (n=19) | - Pain, worst (NRS)<br>- WOMAC pain<br>- WOMAC physical functioning<br>- WOMAC stiffness | Presence of synovitis >7 mm on ultrasound | 1, 4, 8 and 16 weeks |
| **Boon et al. 2010** | 60 | Knee | Methylprednisolone acetate 40mg (n=20) | 1. Low dose Botulinum toxin type A (100 units) (n=20)<br>2. High dose Botulinum toxin type A (200 units) (n=20) | - Pain (VAS)<br>- WOMAC pain<br>- WOMAC physical functioning<br>- WOMAC stiffness<br>- WOMAC total | Presence of effusion by physical examination (mild/moderate/large) | 8, 12 and 26 weeks |
| **Chao et al. 2010** | 79 | Knee | 40 mg triamcinolone acetonide (n=40) | Placebo (1 cc 0.9% saline) (n=39) | - Pain (VAS)<br>- WOMAC pain<br>- WOMAC total | Pathologic effusion of ≥5mm present on ultrasound | 4 and 12 weeks |
| **De Campos et al. 2012** | 104 | Knee | 20 mg triamcinolone hexacetonide + 6 mL hylan GF20 (n=52) | Hylan GF20 (6 mL) (n=52) | - Pain (VAS)<br>- WOMAC pain<br>- WOMAC total | - | 1, 4, 12 and 24 weeks |
| **Lambert et al. 2007** | 52 | Hip | 10 mg bipuvicaine, 40 mg triamcinolone (n=31) | Placebo (10 mg bipuvicaine, 2 ml saline) (n=21) | - WOMAC pain<br>- WOMAC physical functioning<br>- WOMAC stiffness | - | 1, 2, 3 and 6 months |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| | | | | | - Global assessment | | |
| **Ravaud et al. 1999** | 98 | Knee | 3.75 mg cortivazol in 1.5 ml (n=25) | 1. Placebo (1.5 ml 0.9% saline) (n=28)<br>2. joint lavage and IA placebo (n=21)<br>3. Joint lavage and IA corticosteroid (n=24) | - Pain (VAS)<br>- Global status (VAS) | Evidence of effusion by clinical assessment (present or not) | 1, 4, 12 and 24 weeks |

**Table 2**. Baseline characteristics of patients in the study, means (SD) (unless otherwise stated)

| | **Total population N=620** | **Comparison 1: Glucocorticosteriod versus placebo N=222** | **Comparison 2: Glucocorticosteriod versus Hyaluronic acids N=142** | **Comparison 3: Glucocorticosteriod versus Joint lavage N=196** |
|---|---|---|---|---|
| **Age (years)** | 64.74 (10.47) | 64.47 (11.23) | 64.15 (10.24) | 66.28 (9.56) |
| **Gender, % female** | 308 (49.7%) | 91 (41%) | 99 (69.7%) | 82 (41.8%) |
| **BMI (kg/m2)** | 29.82 (5.06)^ | 28.44 (4.89)* | 29.16 (4.73) | 30.80 (5.09) |
| **Hip OA, %** | 129 (20.8%) | 90 (40.5%) | 38 (26.8%) | - |
| **Knee OA, %** | 491 (79.2%) | 132 (59.5%) | 104 (73.2%) | 196 (100%) |
| **KL grade, %** | | | | |
| **1** | 35 (5.6%) | 10 (4.5%) | 20 (14.1%) | 4 (2.0%) |
| **2** | 205 (33.1%) | 41 (18.5%) | 41 (28.9%) | 107 (54.6%) |
| **3** | 202 (32.6%) | 66 (29.7%) | 55 (38.7%) | 39 (19.9%) |
| **4** | 71 (11.5%) | 25 (11.3%) | 25 (17.6%) | 20 (10.2%) |
| **missing** | 107 (17.3%) | 80 (64.0%)** | 1 (0.7%) | 26 (13.3%) |
| **Duration of complaints (months)** | 76.98 (102.57^^ | 86.19 (122.62) | 40.64 (36.02)## | 69.36 (87.22) |
| **Inflammation, %** | 259 (41.8%)^^^ | 88 (39.6%)*** | 28 (19.7%)# | 110 (56.1%) |
| **Severe pain (≥70 points), %** | 213 (34.4%) | 61 (27.5%) | 60 (42.3%) | 65 (33.2%)$$ |
| **Pain (0-100)** | 59.92 (20.34) | 58.63 (17.58) | 64.50 (21.21) | 57.71 (23.02)$ |

*^N=485; ^^ N=495; ^^^N=458;* N=91 (Not available for Lambert and Chao); ** Not available for Chao; ***N=165 (Not available for Lambert)*

*# N=38 (Not available for de Campos); ## N=36 (not available for de Campos)*

*$ N=187; $$ N=187*

**Table 3**. Risk of Bias assessment

| | A1 | B2 | C3 | C4 | C5 | D6 | D7 | E8 | E9 | E10 | E11 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| **Arden et al. 2008** | + | ? | - | - | - | + | ? | - | + | + | + |
| **Atchia et al. 2011** | + | ? | - | - | - | + | + | - | ? | + | + |
| **Boon et al. 2010** | + | ? | + | ? | + | - | ? | - | + | + | + |
| **Chao et al. 2010** | + | ? | + | ? | + | - | ? | + | ? | + | + |
| **de Campos et al. 2012** | + | ? | + | ? | + | + | ? | + | ? | + | + |
| **Lambert et al. 2007** | + | + | + | + | + | + | + | - | + | + | + |
| **Ravaud et al. 1999** | + | ? | + | + | + | + | + | + | + | + | + |

A1. method of randomization adequate; B2. Treatment allocation concealed; C3. patient blinded to the intervention; C4. care provider blinded to the intervention; C5. outcome assessor blinded to the intervention; D6. drop-out rate described and acceptable; D7; randomized participants analysed in the group to which they were allocated; E8. groups similar at baseline regarding the most important prognostic indicators; E9. co-interventions avoided or similar; E10. compliance acceptable; E11. timing of the outcome assessment similar in all groups.

**Table 4**. Overall effectiveness on primary outcome pain severity (0-100 scale)

| | N total | N intervention group | N control group | Effect estimate (95% CI) | Adjusted effect estimate* (95% CI) | $I^2$ | p-value |
|---|---|---|---|---|---|---|---|
| | | | | | | | |
| **Short term (4 trials)**[1] | 207 | 107 | 100 | 17.74 (11.65;23.82) | 18.72 (13.04;24.41) | 67% | **<0.001** |
| **Mid-term (4 trials)**[1] | 181 | 98 | 83 | 7.99 (1.44;14.53) | 10.00 (3.88;16.13) | 67% | **0.002** |
| **Long term (2 trials)**[2] | 71 | 42 | 29 | 6.54 (-6.94;20.02) | 6.25 (-8.59;21.10) | 0% | 0.403 |
| | | | | | | | |
| **Short term (2 trials)**[3] | 142 | 71 | 71 | 9.06 (5.05;13.08) | 9.38 (5.69;13.09) | 0% | **<0.001** |
| **Mid-term (2 trials)**[3] | 131 | 66 | 65 | 0.66 (-3.46;4.77) | 0.97 (-2.96;4.90) | 0% | 0.627 |
| **Long term (1 trial)**[4] | 93 | 47 | 46 | -0.38 (-5.01;4.25) | 0.22 (-4.30;4.75) | n.a. | 0.921 |
| | | | | | | | |
| **Short term (2 trials)**[5] | 191 | 102 | 89 | 0.83 (-1.63;3.30) | 1.08 (-1.31; 3.47) | 51% | 0.374 |
| **Mid-term (2 trials)**[5] | 179 | 93 | 86 | -1.60 (-4.36;1.16) | -1.21 (-3.83;1.41) | 51% | 0.363 |
| **Long term (2 trials)**[5] | 172 | 90 | 82 | -4.85 (-7.68;-2.02) | -4.57 (-7.40;-1.74) | 51% | **0.02** |

* adjusted for baseline pain, age and gender; statistical significant differences (p<0.05) in bold; n.a. Not Applicable

[1]Atchia et al. 2011, Chao et al. 2010, [2] Atchia et al. 2011, de Campos et al. 2012; [4] de Campos et al. 2012; [5] Arden et al. 2008,

**Table 5**. Interaction effects of severe pain (≥70 points) with IA glucocorticoid injection for primary outcome pain severity (0-100 scale)

| | Severe pain n/ N glucocorticosteriod group | Severe pain n/ N control group | Unadjusted interaction effect estimate (95%CI) | Adjusted interaction effect estimate# (95%CI) | Effect Size | Adjusted p-value for interaction term |
|---|---|---|---|---|---|---|
| ***IA glucocorticosteriod injection versus placebo (4 trials)*** | | | | | | |
| **Short term pain**[1] | 28/107 | 30/100 | 14.93 (2.24;27.63) | 13.91 (1.50;26.31) | **0.56** | **0.028** |
| **Mid-term pain**[1] | 26/98 | 19/83 | 3.01 (-10.66;16.87) | 1.84 (-11.27;14.94) | 0.07 | 0.782 |
| **Long term pain**[2] | 15/42 | 11/29 | -4.23 (-32.56;24.09) | -4.31 (-33.73;25.11) | -0.17 | 0.771 |
| ***IA glucocorticosteriod injection versus Hyaluronic acid (2 trials)*** | | | | | | |
| **Short term pain**[3] | 33/71 | 27/71 | 0.85 (-7.05;8.76) | 3.11 (-4.36;10.59) | 0.10 | 0.412 |
| **Mid-term pain**[3] | 31/47 | 25/65 | -4.68 (-12.82;3.45) | -3.15 (-11.14;4.85) | -0.10 | 0.438 |
| ***IA glucocorticosteriod injection versus tidal irrigation (2 trials)*** | | | | | | |
| **Short term pain**[4] | 32/96 | 33/87 | 1.85 (-3.19;6.90) | 1.28 (-3.68;6.24) | 0.04 | 0.610 |
| **Mid-term pain**[4] | 29/88 | 28/83 | 0.30 (-5.44;6.05) | -0.28 (-5.77;5.21) | -0.01 | 0.919 |
| **Long term pain**[4] | 28/85 | 27/79 | 4.12 (-1.82;10.06) | 3.42 (-2.44;9.29) | 0.10 | 0.251 |

# adjusted for age and gender and baseline pain

[1]Atchia et al. 2011, Chao et al. 2010, [2] Atchia et al. 2011, de Campos et al. 2012; [4] Arden et al. 2008,

**Table 6**. Interaction effects of inflammation with IA glucocorticoid injection for primary outcome pain severity (0-100 scale)

| | **Inflammation n/ N intervention group** | **Inflammation n/N control group** | **Unadjusted interaction effect estimate (95%CI)** | **Adjusted interaction effect estimate# (95%CI)** | **Effect Size** | **Adjusted p-value for interaction term** |
|---|---|---|---|---|---|---|
| ***IA glucocorticosteriod versus placebo (3 trials)*** | | | | | | |
| **Short term pain**[1] | 39/77 | 43/79 | 2.14 (-11.36;15.65) | 7.34 (-4.97;19.65) | 0.29 | 0.24 |
| **Mid-term pain**[1] | 39/71 | 34/66 | 3.76 (-10.52;18.04) | 11.08 (-1.34;23.50) | 0.44 | 0.08 |
| ***IA glucocorticosteriod versus tidal irrigation (2 trials)*** | | | | | | |
| **Short term pain**[2] | 60/102 | 47/89 | 1.29 (-3.68;6.25) | 0.73 (-4.07;5.53) | 0.02 | 0.765 |
| **Mid-term pain**[2] | 58/93 | 46/86 | 1.68 (-3.94;7.30) | 1.77 (-3.47;7.01) | 0.05 | 0.505 |
| **Long term pain**[2] | 57/90 | 43/82 | 4.25 (-1.50;10.00) | 5.24 (-0.35;10.84) | 0.16 | 0.066 |

# adjusted for age and gender and baseline pain

[1]Atchia et al. 2011, Chao et al. 2010, Arden et al. 2008,

**Table 7**. Interaction effects of inflammation measured by ultrasound with IA glucocorticoid injection for primary outcome pain severity (0-100 scale)

| | Total N | Inflammation n/ N intervention group | Inflammation n/ N control group | Unadjusted interaction effect estimate (95%CI) | Adjusted interaction effect estimate# (95%CI) | Effect size | Adjusted p-value for interaction term |
|---|---|---|---|---|---|---|---|
| ***IA glucocorticosteriod versus placebo (2 trials)*** | | | | | | | |
| **Short term pain** | 103 | 29/52 | 27/51 | 9.22 (-5.21;23.64) | 9.04 (-0.71;18.80)[1] | 0.39 | 0.069 |
| **Mid-term pain** | 96 | 29/49 | 25/47 | 6.53 (-9.18;22.24) | 7.14 (-4.27;18.55)[2] | 0.31 | 0.217 |

# adjusted for age and gender and baseline pain

[1] Baseline pain: 0.84 (0.69;0.99), p<0.001

[2] Baseline pain: 0.82 (0.65;0.99), p<0.001

[1]Atchia et al. 2011, Chao et al. 2010