

Supplementary table 8. Outcome details for studies on imaging settings and technical standards (PICO2)

AUTHOR, DATE	DISEASE	SETTINGS - SITE	INTERVENTION (COMPOUND)	OUTCOME CATEGORY	OUTCOME DETAIL	OUTCOME EXPLANATION (UNIT) ¹	TIME POINT	RESULTS ²	OVERALL ROB ³
LARGE JOINTS AND PERIARTICULAR STRUCTURES									
Orlandi et al., 2017	Rotator cuff calcific tendinopathy	one Needle vs. two needles - SA-SD Bursa	US guided aspiration, injection (heated saline, 200mg 2% mepivacaine, 1ml triamcinolone)	Accuracy	Tissue/Fluid acquired	Subjective ease of calcium dissolution on a semiquantitative scale	During procedure	no difference	Some concerns
				Safety	Pain Function	Constant Score	BSL, 1m, 3m, 1y	no difference	Some concerns
				Safety	Adverse events	Immediate Complications ⁴ (%)	Post-procedure	no difference	Some concerns
				Safety	Adverse events	Subacromial Bursitis (%)	1y	no difference	Some concerns
				Efficacy	Treatment failure	Change of the one needle method to the two needle method (%)	During procedure	During procedure: worse for one needle ⁵	Some concerns
				Efficacy	Treatment failure	Needle obstruction (%)	During procedure	During procedure: worse for one needle	Some concerns
				Cost/Time	Time	Procedure duration from first needle insertion to steroid injection (sec)	Post-procedure	no difference	Some concerns
Sibbitt et al., 2012	palpably effusive knees (43 RA, 21 OA)	mechanical vs. automatic syringe - knee joint	US guided joint aspiration, injection (5ml 1% lidocaine, 80mg triamcinolone)	Accuracy	Tissue/Fluid acquired	Aspirated fluid (ml)	Post-procedure	no difference	Some concerns
				Safety	Pain	Patient Pain VAS (cm)	BSL, during procedure, 2w	no difference	Some concerns
MULTIPLE JOINTS									
Just et al., 2018	Inflammatory arthritis, degenerative disease	US-NB vs US-P&F vs Arthroscopy - wrist/knee/MCP/ankle/elbow/MTP	Synovial biopsy	Safety	Pain	Patient Pain VAS (mm)	BSL, 1w-2w	no difference	Moderate
				Safety	Adverse events	Complications ⁶ (n°)	n.a. ⁷	no difference	Moderate

Efficacy	Function	Patient Stiffness VAS (mm)	BSL, 1w-2w	no difference	Moderate
Efficacy	Function	Patient Swelling VAS (mm)	BSL, 1w-2w	no difference	Moderate
Efficacy	Patient satisfaction	Willing to participate in another biopsy (%)	n.a. ⁷	Better for US-P&F and arthroscopy ⁸	Moderate

The abbreviation BSL (baseline) refers to the time point before the intervention happened

m, month(s); MTP, metatarsophalangeal joint; NB, needle biopsy; OA, osteoarthritis; PF, portal and forceps; RA, rheumatoid arthritis; SA-SD bursa, subacromial-subdeltoid bursa; US, ultrasound; w, week(s); y, year(s);

¹ The outcomes "Complications" are usually only presented in descriptive manner by the respective authors. Statistical tests were not performed by the authors, unless stated otherwise.

² No difference = at none of the give time points a difference was found between the groups. If differences were found, the time point for the differences is depicted.

³ For details on RoB see supplementary table 3

⁴ Complications included only mild vagal reactions

⁵ In seven of 107 patients (6.5%) treated with one needle who had a hard calcification, a leakage of fluid in the subacromial bursa and in the surrounding tissues was detected. In these patients, a second needle was used and the procedure was completed.

⁶ Complications included syncope or presyncope, tenosynovitis, neurological disturbance (sensory but no motor impairment), hemarthrosis

⁷ Not described by the authors

⁸ Patients undergoing both US-P&F and arthroscopy were more willing than those undergoing US-NB to undergo a repeat procedure (US-P&F vs US-NB: $p < 0.01$ and arthroscopy vs US-NB: $p < 0.01$), while there was no significant difference between US-P&F and arthroscopy ($p = 0.85$).

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