

Supplementary table 5. Outcome details for studies comparing different imaging techniques or imaging vs. palpation guidance at small joints and periarticular structures (PICO1)

AUTOR, YEAR	DISEASE	SITE	OUTCOME CATEGORY	OUTCOME DETAIL	OUTCOME EXPLANATION (UNIT) ¹	TIME POINT	RESULTS ²	OVERALL ROB ³
ULTRASOUND vs. PALPATION GUIDANCE								
Park et al., 2015	AC joint OA	AC joint	Accuracy	Accuracy	Intra-target verified by contrast medium in joint according to X-ray exam (%)	Post-procedure	Post-procedure: better for US	Serious
			Safety	Function Pain	Shoulder Pain and Disability Index (%)	BSL, 1m, 3m, 6m	6m: better for US	Serious
			Safety	Pain	Verbal Numeric Pain Scale at rest (cm)	BSL, 1m, 3m, 6m	no difference	Serious
			Safety	Pain	Verbal Numeric Pain Scale under local pressure (cm)	BSL, 1m, 3m, 6m	6m: better for US	Serious
Hak Roh et al., 2019	trigger finger	finger flexor tendon sheath	Safety	Pain	Patient Pain VAS (cm)	BSL, 3m, 6m	no difference	some concern
			Safety	Adverse events	Complications ⁴ (n)	BSL, 3m, 6m	no difference	some concern
			Efficacy	Function	QuickDASH	BSL, 3m, 6m	no difference	some concern
			Efficacy	Patient satisfaction	5-point scale	n.a. ⁵	BSL: better for US	some concern
Lee et al., 2018	trigger finger	A1 pulley	Safety	Pain	Patient Pain VAS (cm)	BSL, 2w, 4w, last FU ⁶	2,4w: better for US	some concern
			Safety	Adverse events	Complications ⁷ (%)	last FU ⁶	no difference	some concern
			Efficacy	Function	PIP contracture (°)	BSL, last FU ⁶	no difference	some concern
			Efficacy	Patient satisfaction	Satisfied/Unsatisfied (%)	last FU ⁶	no difference	some concern
Cecen et al., 2015	trigger finger	A1 pulley	Safety	Pain	Patient Pain VAS (cm)	BSL, 6w, 6m	no difference	high
			Safety	Adverse events	Complications ⁸ (%)	BSL, 6w, 6m	no difference	high
			Efficacy	Function	Quinnell grading	BSL, 6w, 6m	no difference	high
			Efficacy	Treatment failure	need for a second injection (%)	BSL, 6w, 6m	no difference	high
Pan et al., 2019	trigger finger	A1 pulley	Efficacy	Function	Amount of triggering (%) – semiquantitative scale	BSL, post-procedure, 1w	no difference ⁹	high
			Cost/Time	Time	Duration of operation (min)	during procedure	During procedure: worse for US	high
ULTRASOUND vs. FLUOROSCOPY vs. PALPATION GUIDANCE								
Gershkovich et al., 2019	Thumb CMC arthritis	CMC joint of the thumb	Efficacy	Treatment failure	Patients needing surgery (%)	n.a. ⁵	no difference ¹⁰	serious

			Efficacy	Time to next intervention	Time from the first injection to the moment of surgery (d)	n.a. ⁵	better for palpation guidance compared to US	serious
			Efficacy	Time to next intervention	Time between the injections (d) ¹¹	n.a. ⁵	better for fluoroscopy compared to US for the time between 2nd and 3rd injection ¹²	serious
			Cost/Time	Costs	Costs including physician charges and facility charges	n.a. ⁵	worse for US ¹³	serious
ULTRASOUND/COMPUTED TOMOGRAPHY vs. PALPATION GUIDANCE								
Resnick et al., 2017	JIA	TMJ	Safety	Pain	Decrease in pain (%)	BSL, FU ¹⁴	no difference	14/20
			Efficacy	Anatomical differences	Increase in maximal incisal opening ¹⁵ (mm)	BSL, FU ¹⁴	no difference	14/20
			Efficacy	Treatment response	Decrease in synovial enhancement ratio ¹⁶	BSL ¹⁷ , FU ¹⁸	no difference	14/20
			Cost/Time	Time	Unilateral procedure times ¹⁹ (min)	Post-procedure	Post-procedure: worse for US	14/20
			Cost/Time	Time	Bilateral Procedure times ¹⁹ (min)	Post-procedure	Post-procedure: worse for US	14/20

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

AC joint, Acromioclavicular joint; BSL, Baseline; CMC, carpometacarpal; d, day(s); Fluo., fluoroscopy; JIA, Juvenile idiopathic arthritis; Last FU, last follow-up; m, month(s); PIP, Proximal interphalangeal joint; Quick DASH, Quick Disability of Arm, Shoulder and Hand; TMJ, temporomandibular joint; US, Ultrasound; VAS, visual analogue scale; w, week(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 Described complications included: steroid flare, skin discoloration or subcutaneous fat atrophy, symptoms of digital nerve irritation (tingling/numbness), superficial infection

⁵ Not described by the authors

⁶ The time point for the last follow-up visit is not described

⁷ Complications included: tenderness around the scar, loss of sensation, and presence of infection

⁸ Complications included: hemorrhage, hypopigmentation, atrophy of subcutaneous fat, infection, and tendon rupture (none of them happened)

⁹ Patients were grouped semi quantitatively according to their amount of triggering (0/1/2/3/4 - 4 is worst triggering). The results at baseline days were (% of patients): US: 0/0/10/50/40 vs palpation guidance 0/0/9.5/38/52.4. After the procedure the results were palpation guidance: 0/76.1/14.2/4.8/4.8 vs US: 52.4/40/5/0/0, while after 7 days the results were palpation guidance: 19/71.4/0/4.8/4.8 vs US: 100/0/0/0. A statistical test was not performed.

¹⁰ The percentage of patients having surgery in the US, fluoroscopy and palpation guidance group respectively: 27.8%, 17.1%, 10.5%. No statistical test performed

¹¹ The total n° of days between the 1st and the 2nd, the 2nd and the 3rd and the 3rd and the 4th injection

¹² Longer time in the fluoroscopy group by an average number of 9.4 days compared to US. All other comparisons between injections and methods showed no significant differences.

¹³ Average US costs: 768\$ (SD 1132), Fluoroscopy costs: 517\$ (SD 608), palpation guidance group costs: 565\$ (SD 777). No statistical comparisons were performed

¹⁴ The mean ± SD clinical follow-up was 22.6 ± 4.3 months

¹⁵ Maximal incisal opening was assessed using a rigid triangle or ruler while the patient was asked to open the mouth to the point of restriction.

¹⁶ Synovial enhancement (Synovitis) ratio was calculated from coronal postcontrast fatsaturated T1-weighted MRI series comparing enhancement of the TMJ synovium with the longus capitis muscle

¹⁷ Baseline magnetic resonance images were obtained an average of 2.14 ± 1.35 months before the intervention

¹⁸ Follow up magnetic resonance images were obtained an average of 6.38 ± 2.4 months after intervention

¹⁹ Procedure times were determined from the anesthesia record for each encounter

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