TOTAL SHOULDER ARTHROPLASTY

SUMMARY RECOMMENDATIONS

Notes on PROSPECT recommendations

PROSPECT provides clinicians with supporting arguments for and against the use of various interventions in postoperative pain based on published evidence and expert opinion. Clinicians must make judgments based upon the clinical circumstances and local regulations. At all times, local prescribing information for the drugs referred to must be consulted.

Pain after elective primary total shoulder arthroplasty (TSA)

Total shoulder arthroplasty is frequently associated with moderate-to-severe postoperative pain (Gerbershagen 2013). A systematic review of the available evidence was therefore needed to identify and standardise effective perioperative strategies for pain management, with the aim of improving postoperative analgesia.

Aims and methods of the PROSPECT review

This review (Mrazek 2026) aimed to assess the literature and provide PROSPECT recommendations for optimal pain management after total shoulder arthroplasty.

The PROSPECT group performed the systematic review and formulated the recommendations using the unique PROSPECT methodology, available at https://esraeurope.org/prospect-methodology/. This methodology was first published in Joshi 2019 and updated in Joshi 2023.

EMBASE, MEDLINE, CENTRAL and Web of Science were searched from database inception to 2 June 2026 for randomised controlled trials (RCTs), systematic reviews, meta-analyses and umbrella reviews involving adults undergoing elective primary TSA. Eligible studies evaluated perioperative analgesic, anaesthetic or surgical interventions.

The primary outcome was postoperative pain, reported using a linear pain scale such as the Visual Analogue Scale or Numerical Rating Scale. Secondary outcomes included analgesic consumption and adverse events, where reported.

Of the studies identified by the literature search, 30 RCTs and 7 systematic reviews/meta-analyses met the inclusion criteria. The included studies were evaluated according to PROSPECT methodology. Recommendations were formulated after considering the benefits and adverse effects of the intervention in the clinical context of TSA with use of standard multimodal analgesia (paracetamol with an NSAID or COX-2-selective inhibitor).

This review is registered on PROSPERO: CRD420251156103.

Summary of recommendations and key evidence

Summary of recommendations and key evidence for pain management in patients undergoing primary TSA
Systemic (basic) analgesia
Paracetamol combined with an NSAID or COX-2-selective inhibitor is recommended, administered either preoperatively or intraoperatively and continued postoperatively, unless contraindicated • In accordance with PROSPECT methodology (Joshi 2023), RCTs representing basic analgesics (paracetamol, NSAIDs, COX-2 specific inhibitors) were not included in this updated review. These components are considered essential to all multimodal analgesic regimens.
A single intraoperative dose of dexamethasone 8–10 mg IV is recommended • The PROSPECT Working Group agreed that a single intraoperative dose of dexamethasone 8–10 mg IV could be considered part of basic analgesia because of its postoperative analgesic effects (Desai 2021).
Regional analgesia
Interscalene brachial plexus block with a single-bolus injection of long-acting local anaesthetic (bupivacaine or ropivacaine) is recommended • Interscalene brachial plexus block with a single bolus of long-acting local anaesthetic is recommended based on evidence of reduced pain scores compared with local infiltration analgesia within the first 8 or 16 postoperative hours (Panchamia 2019; Ali 2021; Namdari 2017; Okoroha 2016), and lower opioid consumption on postoperative day zero (Panchamia 2019; Ali 2021; Namdari 2017; Schumaier 2023). **In case of contraindications or absence of expertise, local infiltration analgesia (with bupivacaine or ropivacaine) is a reasonable alternative.**
Rescue analgesia
Opioids should be reserved for rescue analgesia • In accordance with PROSPECT methodology (Joshi 2023), RCTs investigating opioids were not included in this updated review.

COX, cyclooxygenase; IV, intravenous; NSAID, non-steroidal anti-inflammatory drug; RCT, randomised controlled trial.

Interventions that are NOT recommended

Analgesic interventions that are not recommended for pain management in patients undergoing primary TSA.

	Intervention	Reason for not recommending
Regional anaesthesia	Continuous vs single-bolus injection for ISB	Conflicted procedure-specific evidence
	Continuous ISB vs single-bolus injection for supraclavicular or suprascapular nerve block	Lack of procedure-specific evidence
	Continuous ISB vs continuous high-thoracic erector spinae plane block	Lack of procedure-specific evidence
	ISB with liposomal bupivacaine vs bupivacaine (single-bolus injection)	Lack of procedure-specific evidence
	ISB with liposomal bupivacaine vs continuous ISB with bupivacaine or ropivacaine	Conflicted procedure-specific evidence
	ISB with liposomal bupivacaine vs bupivacaine and perineural dexamethasone (single-bolus injection)	Conflicted procedure-specific evidence
	LIA with ropivacaine vs ISB with liposomal bupivacaine	Lack of procedure-specific evidence
	LIA with liposomal bupivacaine vs ISB with ropivacaine (single-bolus injection)	Lack of procedure-specific evidence
Other modalities	Opioid-free protocol	Conflicted procedure-specific evidence
	Six-day regimen of methylprednisolone 4 mg	Limited procedure-specific evidence
	Sevoflurane vs propofol for maintenance of anaesthesia	Lack of procedure-specific evidence
	Intravenous tranexamic acid 2 g	Lack of procedure-specific evidence
	Three-week immobilisation	Lack of procedure-specific evidence
	Multimodal sleep pathway	Lack of procedure-specific evidence
	Music therapy	Limited procedure-specific evidence

ISB, interscalene brachial plexus block; LIA, local infiltration analgesia.

Overall PROSPECT recommendations table

Overall recommendations for procedure-specific pain management in patients undergoing primary TSA	
Pharmacological treatments	• Paracetamol combined with an NSAID* administered pre-operatively or intra-operatively and continued postoperatively, unless contraindicated
	• Single intra-operative, intravenous dose of systemic dexamethasone 8–10 mg
	• Opioid for rescue postoperatively
Anaesthetic and analgesic strategies	• Interscalene block (single-bolus administration of long-acting local anaesthetic: bupivacaine or ropivacaine) (level of evidence: moderate; strength of recommendation: strong)
	• Local infiltration analgesia (with bupivacaine or ropivacaine) as an alternative (level of evidence: moderate; strength of recommendation: strong)
Surgical procedures	• None
Other modalities	• None

*Non-selective NSAIDs or COX-2-selective inhibitors.
COX, cyclooxygenase; IV, intravenous; NSAID, non-steroidal anti-inflammatory drug.

PROSPECT publication

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Pain management after total shoulder arthroplasty: a systematic review and procedure-specific postoperative pain management (PROSPECT) recommendations.

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Infographic

PROSPECT recommendations for TSA – Infographic

