

ELECTIVE TOTAL HIP 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 judgements based upon the clinical circumstances and local regulations. At all times, local prescribing information for the drugs referred to must be consulted.

Grades of recommendation and levels of evidence

Grades of recommendation are assigned according to the overall level of evidence on which the recommendations are based, which is determined by the quality and source of evidence: [Relationship between quality and source of evidence, levels of evidence and grades of recommendation](#).

Pain after total hip arthroplasty and aims of the PROSPECT review

Total hip arthroplasty is a common surgical procedure and is associated with significant postoperative pain. Adequate analgesia with minimal side effects allows for early postoperative mobility, optimal functional recovery and decreased postoperative morbidity ([Joshi 2019](#)).

The PROSPECT group has previously published a review on postoperative pain management for total hip arthroplasty in 2005 ([Fischer 2005](#)), updated in 2010 ([esraeurope.org: total-hip-arthroplasty-2010](http://esraeurope.org:total-hip-arthroplasty-2010)). The aim of this guideline is to provide clinicians with an updated evidence-based approach to pain management for elective total hip arthroplasty.

The systematic review and recommendations were updated using the recently modified PROSPECT methodology ([Joshi 2019](#)), focusing on postoperative pain outcomes while assessing the effects of analgesic interventions in reference to the use of basic analgesics (paracetamol and NSAIDs or COX-2 selective inhibitors) and balancing risks and benefits of analgesic strategies.

Summary recommendations

Recommended: Pre- and intra-operative interventions	
<ul style="list-style-type: none"> • ‘Pre-operative’ refers to interventions applied before surgical incision and ‘intra-operative’ refers to interventions applied after incision and before wound closure • Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period 	
Exercise and education	Pre-operative exercise and education are recommended (Grade A) for positive effects on postoperative pain and function.
Paracetamol and NSAIDs/COX-2-selective inhibitors	The basic analgesic regimen should include combination of paracetamol (Grade A) and an NSAID or a COX-2-selective inhibitor (Grade A) administered pre-operatively or intra-operatively and continued post-operatively.
Anaesthetic technique	<p>Spinal or general anaesthesia is recommended (Grade A).</p> <ul style="list-style-type: none"> • Neuraxial anaesthesia has been recommended because it is associated with improved postoperative outcomes compared with general anaesthesia (Memtsooudis 2019). However, its benefits with regards to postoperative pain control remain inconclusive.
Dexamethasone	A single intra-operative dose of dexamethasone 8–10 mg IV is recommended for its analgesic and anti-emetic effects (Grade A).
Local/regional analgesia	<p>A single shot fascia iliaca block or local infiltration analgesia is recommended (Grade D) due to analgesic effects.</p> <ul style="list-style-type: none"> • In recent meta-analyses no more falls were reported with fascia iliaca block (Cai 2019; Gao 2019), which is recommended as preferred nerve block when a nerve block is indicated for total hip arthroplasty. • The PROSPECT group emphasises that with modern surgical techniques and the correct implementation of basic analgesia and multimodal analgesia (paracetamol, NSAIDs and dexamethasone) the added value of local infiltration analgesia techniques still warrants further validation with well-conducted studies.
	<p>If the patient has received spinal anaesthesia for the surgery, intrathecal morphine 0.1 mg could be considered (Grade D).</p> <ul style="list-style-type: none"> • There was significant conflict amongst the PROSPECT members regarding the use of intrathecal morphine 0.1 mg, and a consensus could not be reached. If intrathecal morphine is used, the PROSPECT group reminds clinicians of the risks and benefits associated with its use. • In favour of intrathecal morphine is the documented analgesia it

	<p>provides for at least 24 hours postoperatively and the limited adverse effects with small doses (≤ 0.1 mg morphine) (Bai 2020; Albrecht 2020).</p> <ul style="list-style-type: none"> • However, pruritus and postoperative nausea and vomiting are associated with intrathecal morphine (Kuchálik 2013; Damevski 2011). It was thought that even if the incidence of these adverse events may be relatively lower with intrathecal morphine 0.1 mg, they may still delay ambulation and oral intake, and influence patient satisfaction (Kuchálik 2013; Damevski 2011). • Indeed, adequate multimodal analgesia with paracetamol, NSAIDs and dexamethasone, without intrathecal morphine, together with more recent surgical techniques, may be sufficient to provide patients with good pain relief (Andersen 2014; Coenders 2020; Fraser 2018).
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Recommended: Postoperative interventions	
<ul style="list-style-type: none"> • ‘Postoperative’ refers to interventions applied at or after wound closure • Analgesics should be administered at the appropriate time (pre- or intra-operatively) to provide sufficient analgesia in the early recovery period 	
Paracetamol and NSAIDs/COX-2-specific inhibitors	The basic analgesic regimen should include combination of paracetamol (Grade A) and an NSAID or a COX-2-selective inhibitor (Grade A) administered pre-operatively or intra-operatively and continued post-operatively.
Opioids	Opioids should be reserved as rescue analgesics in the post-operative period (Grade D).

COX, cyclooxygenase; IV, intravenous; NSAIDs, non-steroidal anti-inflammatory drugs.

Interventions that are NOT recommended

Analgesic interventions that are not recommended * for pain management in patients undergoing total hip arthroplasty.

Timing	Intervention	Reason for not recommending
Pre-operative or intra-operative	Carbohydrate loading	Limited procedure-specific evidence
	Outpatient status	Limited procedure-specific evidence
	Pre-incisional COX-2-selective inhibitor versus post-incisional	Limited procedure-specific evidence
	Gabapentinoids	Inconsistent evidence for single-dose. Procedure-specific evidence for multiple peri-operative doses, but extra side-effects
	Ketamine	Limited procedure-specific evidence
	Lateral femoral cutaneous block	Limited procedure-specific evidence
	Anterior quadratus lumborum block	Limited procedure-specific evidence
	Femoral nerve block	Procedure-specific evidence, but side-effects
	Lumbar plexus block	Procedure-specific evidence, but side-effects
	LIA adjuncts to local anaesthesia drugs	Inconsistent procedure-specific evidence
	LIA infusion or repeated injections	Inconsistent procedure-specific evidence
	Epidural analgesia	Procedure-specific evidence, but side-effects
Postoperative	Tranexamic acid	Lack of procedure-specific evidence
	Partial weight bearing	Lack of procedure-specific evidence
	Topical fibrin sealant	Lack of procedure-specific evidence
	TENS	Limited procedure-specific evidence
Surgical Technique	Anterior approach versus posterolateral approach	Inconsistent procedure-specific evidence
	Minimally invasive versus traditional incision	Inconsistent procedure-specific evidence, increased risks

COX, cyclooxygenase; LIA, local infiltration analgesia; TENS, transcutaneous electrical nerve stimulation.

* It is possible that analgesic approaches not recommended in this review due to limited analgesic efficacy and/or concerns of adverse effects may be appropriate in situations where one or more of the primary recommendations are contra-indicated or otherwise not appropriate to use. Also, it may be appropriate to use additional analgesic interventions beyond the primary recommendations in patients with an anticipated higher than average risk of strong postoperative pain (e.g. chronic opioid use; chronic pain states; or significant psychiatric disorders).

Overall PROSPECT recommendations

Overall recommendations for peri-operative pain management in patients undergoing total hip arthroplasty

Pre-operative and intra-operative interventions	<ul style="list-style-type: none"> • Pre-operative exercise and education (Grade A) • General or spinal anaesthesia (Grade A) • Paracetamol (Grade A) • Non-steroidal anti-inflammatory drugs or cyclo-oxygenase-2-selective inhibitors (Grade A) • Dexamethasone 8–10 mg IV (Grade A) • Single shot fascia iliaca block or local infiltration analgesia (Grade D) • If the patient has received spinal anaesthesia for the surgery, intrathecal morphine 0.1 mg could be considered (Grade D)
Postoperative interventions	<ul style="list-style-type: none"> • Paracetamol (Grade A) • Non-steroidal anti-inflammatory drugs or cyclo-oxygenase-2-selective inhibitors (Grade A) • Opioid for rescue (Grade D)

IV, intravenous.

PROSPECT publication

PROSPECT guideline for total hip arthroplasty: systematic review and procedure-specific postoperative pain management recommendations.

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