BRITISH HIP SOCIETY

In collaboration with BAJIS

BONE AND JOINT INFECTION SOCIETY

BHS SURGICAL STANDARD

Total Hip Replacement in Patients at High Risk of Prosthetic Joint Infection (PJI)

Background

Patients at higher risk of PJI should not be excluded from consideration for hip replacement surgery[1]. Whilst many factors increase the risk of PJI in hip replacement surgery, the benefits are significant, and it is important not to discriminate against patients at higher risk, denying them effective care and creating health inequality. Modifiable risk factors should be optimised and patients should be suitably counselled with documentation of shared decision-making including acceptance of increased risks and discussion of risk factor modification. For example, NICE Guidance (2022) notes that "BMI should not be used to deny patients access to hip replacement surgery". Functional outcomes are broadly comparable to patients of normal weight, but infection risk and other complications are higher. BMI restrictive policies have been found to be counteractive, patients experiencing worsening symptoms and obesity during the delay period. Other risk factors should be considered in a similar way.

Risk Factors

Recognition of risk factors should prompt optimisation. These include (but are not limited to):

- Elevated BMI (≥ 35 kg/m²)
- ASA 3 or above
- Poor glycaemic control (a continuous variable, national guidance focusses on an HbA1c threshold of 69 mmol/mol)
- Anaemia
- Malnutrition & Hypoalbuminaemia
- Immunosuppression (including steroids, biologics, malignancy)
- Smoking
- Chronic kidney disease
- Previous surgery or infection in the affected joint
- Colonisation with organisms such as MRSA or MSSA
- Frailty

Organisation

A clear pathway should be in place for identification, optimisation and management of high-risk patients undergoing THR:

- High-risk patients should be identified at the point of referral or listing for surgery and flagged for optimisation of modifiable risk factors.
- MDT input should be available where required, including microbiology/infectious diseases, anaesthesia, and medical specialists.
- Units should have protocols for optimisation of modifiable risk factors prior to surgery.
- Data relating to infection rates should be submitted to national databases (e.g. NJR, SSISS) and audited locally.

Pre-operative Optimisation

Modifiable risk factors should be addressed prior to surgery wherever possible:

- Patients with elevated BMI should receive counselling and documented consideration of weight management referral.
- Glycaemic control should be optimised (target HbA1c <69 mmol/mol). Elective surgery should be deferred if poorly controlled.
- Anaemia should be screened for early, investigated and treated. Iron deficiency should be corrected, with intravenous iron considered where time to surgery is limited.
- Nutritional status should be assessed (e.g. MUST score) and optimised.
- Smoking cessation should be advised, and referral to smoking cessation services performed and documented.
- Screening for MRSA/MSSA should be undertaken, with decolonisation where indicated.
- Active infection (e.g. urinary, dental, skin) should be identified and treated prior to surgery.
- Consider use of preoperative antiseptic skin washes (e.g. chlorhexidine).

Intra-operative & Peri-operative Management

Enhanced precautions should be considered in high-risk patients:

- Intravenous prophylactic antibiotics should be administered within 60 minutes prior to skin incision in accordance with local policy in all patients.
- Tranexamic acid use is recommended.
- Repeat antibiotic dosing should be undertaken for prolonged procedures.
- Active warming should be used pre- and intra-operatively to maintain normothermia (core temperature 36.5–37.5°C).
- High-dose or dual antibiotic-loaded cement should be considered in selected high-risk cases. Local antibiotic carriers may be considered.
- Meticulous soft tissue handling and haemostasis should be employed.
- Theatre traffic and door openings should be minimised.
- Alcohol-based povidone Iodine or chlorhexidine skin preparation should be used unless contraindicated.
- Negative pressure wound therapy should be used in selected high-risk patients[2].
- Perioperative glycaemic control should be maintained within target range (6–10 mmol/L).

Post-operative Care & Surveillance

- Dressings should be left undisturbed where possible for 10 to 14 days.
- Routine extended postoperative antibiotics are not recommended without specialist advice.
- Patients should be mobilised early.
- Persistent wound drainage >72 hours should prompt urgent consultant review. Drainage >5 days or systemic features should prompt urgent assessment.
- Investigation (inc. blood tests and aspiration where indicated) should be undertaken if PJI is suspected, following management of PJI guidance[3-5].
- Patients should be educated to monitor their surgical wound and promptly report any concerns (e.g. redness, swelling, discharge, increasing pain or wound breakdown) to the orthopaedic team who performed the surgery to enable early clinical review and intervention.
- Units should provide a single point of contact for patients with suspected wound complications to ensure prompt review and escalation.

References:

1. NICE Guidance NG226 https://www.nice.org.uk/guidance/ng226
2. NICE Guidance HTG509 https://www.nice.org.uk/guidance/htg509
3. https://inform.bristol.ac.uk/resources-for-clinicians/secondary-care-resources-for-clinicians/
4. https://www.boa.ac.uk/resource/boast-acute-management-of-peri-prosthetic-joint-infection.html
5. https://britishhipsociety.com/Portals/0/Downloads/Revision-Hip-Network/BHSSS-PJI.pdf