What are the absolute contraindications for elective total knee or hip arthroplasty?

Hyonmin Choe, Yasuhiro Homma, Pier Francesco Indelli, Tahir Khan, James Kigera, Tae-Young Kim, Benjamin Ricciardi, V Margarita Veloso Duran

Response/Recommendation: 54 words

Modifiable absolute contraindications to performing elective total joint arthroplasty are symptomatic bacteremia, active joint or local tissue infection, severe malnutrition, uncontrolled metabolic syndrome, uncontrolled diabetes mellitus, untreated immunodeficiency, uncontrolled chronic diseases, and active deep venous thrombosis (DVT) or pulmonary embolism (PE). Non-modifiable absolute contraindications are severe medical comorbidities precluding anesthesia including severe cardiopulmonary diseases.

Level of Evidence: limited

Short version 47 words

Response/Recommendation: Modifiable absolute contraindications to performing elective total joint arthroplasty are symptomatic bacteremia, active joint or local tissue infection, severe malnutrition, uncontrolled metabolic syndrome or chronic diseases, untreated immunodeficiency, and active deep venous thrombosis (DVT) or pulmonary embolism (PE). Non-modifiable absolute contraindications are severe medical comorbidities precluding anesthesia.

Rationale:

Absolute contraindications for elective total knee or hip arthroplasty can be categorized into modifiable and non-modifiable risk factors. An absolute modifiable risk factor is defined as a risk factor that is associated with a preventable complication, thereby necessitating the postponement of surgery until the risk factor for comlication is appropriately evaluated and optimized. On the other hand, an absolute non-modifiable risk factor is one that cannot be optimized and thus precludes the patient from undergoing surgery. In such cases, alternative therapies for joint pain should be pursued. As a result of conducting this systematic review, various contraindications to elective total hip or knee arthroplasty were identified.

Consistently cited contraindications include active infection of the affected joint or limb, and severe medical comorbidities precluding anesthesia, although these are not thoroughly specified [1-7]. Therefore, in patients with symptomatic bacteremia, active joint infection such as pyogenic arthritis, active local tissue infection such as a cellulitis at the incision site should be absolutely delayed for until the infections are treated or controlled. Another modifiable absolute contraindications regarding the risk of infection are uncontrolled conditions such as severe malnutrition (serum albumin<3 g/dL, transferrin levels<200 mg/dL) [5, 6][7-13], uncontrolled metabolic syndrome including morbid obesity (BMI>50) and uncontrolled diabetes mellitus (DM) (HbA1c>8%) [14-17], while there remains room for further validation in establishing an appropriate cutoff value for BMI and HbA1c**.** Untreated Immunodeficiency conditions, such untreated human immunodeficiency virus (HIV), is also an absolute contraindication for elective total knee or hip arthroplasty. It is recommended that patients on HAART therapy maintain a preoperative CD4+ count of at least ≥ 200 or greater [18]. Uncontrolled chronic diseases such as end-

stage renal disease requiring hemodialysis, liver cirrhosis (Child-Pugh C), uncontrolled congestive heart failure, and severe chronic obstructive pulmonary disease are modifiable absolute contraindications for elective total knee or hip arthroplasty [19-21]. A recent history of intra-articular injection, anemia, and tobacco or substance abuse does not constitute absolute contraindications but are factors that should be taken into account prior to surgery [22, 23].

A number of articles have addressed risk factors contributing to mortality after elective hip and knee arthroplasty [24-38]. While the risk of early mortality after elective hip and knee arthroplasty is low (0.1-0.3% in the first 90 days) and has decreased over time, consistent risk factors that increase this risk have been described including advanced age (greater than 90 years old), high comorbidity burdens, severe cardiopulmonary disease including ischemic heart disease, pulmonary hypertension, male sex, and frailty [25, 28, 30, 31, 33, 37, 39]. Additionally, post-operative complications such as venous thromboembolism, cerebrovascular complications, and cardiac disease were the primary sources of mortality risk in the early post-operative period [6,10,13,21]. While all of them cannot be considered absolute contraindications for performing total hip or knee arthroplasty, they may be regarded as relative contraindications. However, active DVT, particularly involving the iliofemoral or popliteal veins, is an absolute modifiable contraindication for elective hip and knee arthroplasty. Surgery can dislodge existing thrombi, leading to potentially life-threatening complications like pulmonary embolism (PE). Anticoagulation therapy is typically initiated to manage the acute DVT, and elective total hip or knee arthroplasty should be postponed until the DVT resolves and the patient is on stable anticoagulation for a sufficient period (typically 3-6 months) [40]. Finally, severe medical comorbidities precluding anesthesia including severe cardiopulmonary diseases can be non-modifiable absolute contraindications regarding the risk of mortality.

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