Author: Arjun Saxena

QUESTION 2: Is acute femoral neck fracture a risk factor for infection in patients undergoing hip arthroplasty?

RECOMMENDATION: There appears to be a higher incidence of infection in patients undergoing arthroplasty for acute femoral neck fracture compared to hip arthroplasty for primary osteoarthritis. The reported rate of infection has a wide range; prospective studies should be performed to determine the true rate of periprosthetic joint infection (PJI) in this subset of patients.

LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 96%, Disagree: 4%, Abstain: 0% (Unanimous, Strongest Consensus)

RATIONALE

A study on 58,000 elective, primary total hip arthroplasties (THAs) demonstrated a deep surgical site infection (SSI) rate of 0.2% [1]. There are multiple studies reviewing the outcomes of treatment for femoral neck fractures. Most of the studies are retrospective reviews of small cohorts that are not sufficiently powered to study infection rates. Additionally, many of the studies merge primary hemi or total arthroplasty patients with patients who underwent open reduction and internal fixation, and then subsequently a secondary arthroplasty procedure. While most studies report infection rates, the primary endpoint tends to aim at a controversy in treating these fractures, such as cemented versus cementless, or performing hemiarthroplasty versus total arthroplasty. Infection rates vary from 1.2% to 4% [2–5]. A study on 90-day costs following hemiarthroplasty or THA for treatment of hip fractures demonstrated a 17.7% infection rate, but this was not limited to surgical site infections; urinary tract infections, pneumonias and other infections are included in this percentage [6]. A meta-analysis on outcomes of patients who sustained femoral neck fractures reported a 1.0% SSI rate in patients undergoing THA, 1.7% SSI rate in patients undergoing bipolar hemiarthroplasty and a 2.8% SSI rate in patients undergoing unipolar hemiarthroplasty [7].

A study from the Swedish Hip Arthroplasty compared 10,264 patients who underwent THA for treatment of a subcapital hip fracture with 76,520 patients who underwent THA for other reasons and they reported a 0.5% infection rate in the patients who were treated for fracture [8]. It appears that the rate of infection is higher in patients undergoing arthroplasty surgery for the treatment of acute femoral neck fractures.

REFERENCES

[1] Phillips CB, Barrett JA, Losina E, Mahomed NN, Lingard EA, Guadagnoli E, et al. Incidence rates of dislocation, pulmonary embolism, and deep infection during the first six months after elective total hip replacement. J Bone Joint Surg Am. 2003;85-A:20–26.

[2] Kassam A-A, Griffiths S, Higgins G. Historical implant or current best standard? Minimum five year follow-up outcomes of cemented Thompson hemiarthroplasties. J Arthroplasty. 2014;29:1745–1748. doi:10.1016/j.arth.2014.04.032.

[3] Zi-Sheng A, You-Shui G, Zhi-Zhen J, Ting Y, Chang-Qing Z. Hemiarthroplasty vs primary total hip arthroplasty for displaced fractures of the femoral neck in the elderly: a meta-analysis. J Arthroplasty. 2012;27:583–590. doi:10.1016/j.arth.2011.07.009.

[4] Inngul C, Hedbeck CJ, Blomfeldt R, Lapidus G, Ponzer S, Enocson A. Unipolar hemiarthroplasty versus bipolar hemiarthroplasty in patients with displaced femoral neck fractures: a four-year follow-up of a randomised controlled trial. Int Orthop. 2013;37:2457–2464. doi:10.1007/s00264-013-2117-9.

[5] Enocson A, Hedbeck CJ, Törnkvist H, Tidermark J, Lapidus LJ. Unipolar versus bipolar Exeter hip hemiarthroplasty: a prospective cohort study on 830 consecutive hips in patients with femoral neck fractures. Int Orthop. 2012;36:711–717. doi:10.1007/s00264-011-1326-3.

[6] Nichols CI, Vose JG, Nunley RM. Clinical outcomes and 90-day costs following hemiarthroplasty or total hip arthroplasty for hip fracture. J Arthroplasty. 2017;32:S128–S134. doi:10.1016/j.arth.2017.01.023.

[7] Lu-Yao GL, Keller RB, Littenberg B, Wennberg JE. Outcomes after displaced fractures of the femoral neck. A meta-analysis of one hundred and six published reports. J Bone Joint Surg Am. 1994;76:15–25.

[8] Leonardsson O, Rogmark C, Kärrholm J, Akesson K, Garellick G. Outcome after primary and secondary replacement for subcapital fracture of the hip in 10,264 patients. J Bone Joint Surg Br. 2009;91:595–600. doi:10.1302/0301-620X.91B5.22224.

3.4. TREATMENT: PROCEDURE-RELATED

Author: Pedro Caba

QUESTION 1: What is the optimal timing of surgical debridement in open fractures?

RECOMMENDATION: It is not possible to establish a clear cut-off for optimal timing of open fracture surgical debridement after injury. Administration of antibiotic prophylaxis and adequacy of debridement is more important than time to debridement. However, we recommend debridement as soon as the patient and operative conditions are optimal.

LEVEL OF EVIDENCE: Limited

DELEGATE VOTE: Agree: 100%, Disagree: 0%, Abstain: 0% (Unanimous, Strongest Consensus)