

Browser's notes

Published online: 17 October 2018
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Mortality following periprosthetic proximal femoral fractures versus native hip fractures.

Boylan MR, et al.
J Bone Joint Surg Am. (2018); 100(7):578–85

An ICD-9 code search of the New York State-wide Planning and Research Cooperative System (SPARCS) database (which includes data for all inpatient admission in New York state) from 2006 to 2014 identified 1655 patients (mean age 78.9 years, 73% female) with periprosthetic proximal femoral fractures and 97,231 patients (mean age 82.6 years, 74% female) with native femoral neck or intertrochanteric femoral fractures treated with hip arthroplasty or internal fixation, closed or open. The arthroplasty types were not available. Exclusions included age < 60 or > 99 years, fractures occurring during primary arthroplasty, and surgical delay greater than 7 days. Demographic data about age, gender, race (white/non-white), insurance (government/private) and comorbidities based on the Charlson/Deyo score were collected. All-cause mortality data were obtained from the New York State vital statistics. Compared to patients with periprosthetic proximal femoral fractures, patients with native proximal femoral fractures had a higher mortality rate at 1 month (4.6% vs.3.2%), 6 months (6.5% vs.3.8%), and 1 year (15.9% vs.9.7%). After adjustment for demographics, comorbidities, and delay before surgery, the difference in mortality between the groups proved insignificant at 1 month, but significantly different at 6 months and 1 year with the adjusted 1 year mortality 29% lower for the periprosthetic fracture group. Older age, male sex and higher Charlson/Deyo comorbidities scores were mortality risk factors for both groups while surgical delay, white race, and government insurance were mortality risk factors only for the native hip fracture group. For those with periprosthetic fractures, treatment with open reduction and internal fixation improved 1 month and 6 month mortality, but not 1 year mortality (Odds ratios 0.47, 0.46, and 0.8, respectively). These data suggest that the acute risks

are similar following any type of proximal femoral fracture, but patients with periprosthetic fractures appear to have less severe long term consequences.

Posterior tibial translation measurements on magnetic resonance imaging improve diagnostic sensitivity for chronic posterior cruciate ligament injuries and graft tears.

DePhillipo NN, et al.
Am J Sports Med. (2018); 46(2):341–7

Torn posterior cruciate ligaments (PCL) can heal yet remain biomechanically inadequate. Unfortunately, these “healed” chronic PCL tears that are clinically inadequate can be missed by MR imaging since the fibers appear continuous, although elongated. This retrospective analysis investigated the value of posterior tibial translation measurements on MR imaging for the diagnosis of PCL laxity. The study group included all patients operated for posterior cruciate ligament tears (89 primary tears, 11 torn PCL reconstruction [PCLR] grafts, mean patient age 31 years, 80 male) with an intact ACL who had preoperative knee MR and posterior stress knee radiographs. The operated groups were compared to a control group of 100 patients (mean age 49 years, 50 male) with similar imaging but without ligamentous injury. Lateral projection posterior stress radiographs were performed with the patient kneeling on a pad supporting the tibia but not the femur and considered the standard reference for the presence of PCL laxity. The prospective musculoskeletal radiologist’s PCL diagnosis was obtained from the MR reports. Posterior tibial translation was measured independently by 2 orthopedic surgeons blind to the patient’s clinical care for the medial and lateral compartments on mid-compartment sagittal proton density weighted MR images. For each compartment, the distance between lines drawn perpendicular to the tibial articular surface and tangent to the posterior-most aspects of the femur and tibia were recorded as the medial and lateral tibial translation; a negative value indicated anterior tibial displacement beneath the femur. For the 89 patients with native PCL tears, the initial radiologist’s report was correct for 78 (88%) with 100% sensitivity

for acute tears, but only 62.5% sensitivity for chronic tears. For PCL graft tears, MR reports were only accurate for only 2 of 11 (18%). Mean medial compartment posterior tibial translation (PTT) on MR images was -2.3 mm for ligament intact controls, $+1$ mm for acute native PCL tears, $+3.8$ mm for chronic native PCL tears, and $+3.4$ mm for PCLR graft tears. Medial PTT for knees with chronically torn native PCLs and torn PCLR grafts were significantly greater than for those with acute PCL tears. Receiver operating curve (ROC) analysis of the chronic PCL tear group showed that a cutoff value of $+2$ mm for medial PTT results in a sensitivity of 80% and specificity of 89%. For the PCLR graft failure group,

a cutoff of $+3.6$ mm was most accurate (sensitivity 92%, specificity 50%). The calculated difference between medial and lateral PTT measurements (medial PTT – lateral PTT) was significantly different for acute and chronic native PCL tears, but not acute native tears and PCLR graft tears. These data suggest that measurement of the medial compartment posterior tibial translation can improve the diagnostic accuracy of MR for chronic PCL tears and torn PCL grafts.

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January 2019**