

**Risk factors for periprosthetic and femoral fractures among Medicare recipients of primary THR**

| Factor  | Predictors of periprosthetic fracture OR (95% CI)* | Predictors of femoral fracture OR (95% CI)* |
|---|--|---|
| Age (in 2006): <80 >80  | 1.0 1.26 (0.95, 1.66)                              | 1.0 1.77 (1.52, 2.07)                       |
| Sex: Male Female  | 1.14 (0.86, 1.51) 1.0                              | 0.71 (0.60, 0.83) 1.0                       |
| Race: White Non-white   | NA**   | 1.97 (1.28, 3.02) 1.0                       |
| Hospitalizations 1995-2006: 0-2 3-5 >5                            | 1.0 0.99 (0.72, 1.35) 1.15 (0.79, 1.69)            | 1.0 1.20 (1.01, 1.41) 1.91 (1.59, 2.29)     |
| Joint replacements after index THR and before 2006: 0 1 2 or more | 1.0 1.31 (0.97, 1.75) 1.70 (1.00, 2.88)            | 1.0 0.60 (0.50, 0.72) 0.85 (0.62, 1.15)     |

\* adjusted for factors on table and Medicaid eligibility \*\* not analyzed – too few non-Whites

of hip or knee replacements after the index THR in 1995-96. We calculated the risk of hospitalization over the next year for those patients who had periprosthetic or femoral fracture in 2006-2007 as well as for subjects who did not have either type of fracture.

**Results:** Among 58,521 Medicare beneficiaries who had elective primary THR in July 1995- June 1996, 32,463 (55%) survived until January 2006. Over the next three years, 215 (0.7%) of these patients developed a periprosthetic proximal femoral fracture and 805 (2.5%) developed a femoral fracture unrelated to a prior implant. The annual incidence of periprosthetic fracture was 0.26/100 person-years and the annual incidence of femoral fracture was 0.96/100 person-years. Older age, female sex, white race and number of hospitalizations prior to fracture were associated with greater risk for femoral fracture, but not for periprosthetic fracture. The number of additional total hip or knee replacements from the index THR to the time of fracture was associated with periprosthetic fracture (see Table). Compared to those without fractures, THR recipients who sustained either type of fracture had four-fold higher risk of hospitalization in the subsequent year (36% vs. 9%,  $p < 0.0001$ ).

**Conclusions:** Periprosthetic fractures do not share osteoporotic risk factors and occur less frequently than non-implant related femoral fractures, but they pose a similar burden of health care utilization. Due to the high prevalence of THR in older persons, these fractures lead to substantial resource use and morbidity.

### 323 ISOKINETIC ASSESSMENT OF MUSCLE STRENGTH IN PATIENTS WITH KNEE PAIN

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**Purpose:** One of the most common joint diseases is osteoarthritis (OA) and the knee is the most frequently affected joint in western populations. Radiography is not a good method of diagnosis in early stages of OA, but since knee extensor and flexor strength are both lost in OA, their detection could provide better diagnostic criteria of incipient cases.

Currently, isokinetic dynamometry measures optimal loading of the muscles in dynamic conditions and constant preselected velocity of movement. Hence, dynamometry is considered an objective method to determine muscle strength. However, it is not known whether isokinetic measurements provide knee pain information as a symptom of early OA. Hence, our purpose was to determine: 1. Isokinetic parameters as peak torque, total work, and muscle power of the different muscle groups (quadriceps and hamstring) involved in mild knee pain; 2. Compare isokinetic measurements between knees with mild pain vs. contra-lateral painless knee; 3. Conduct an assessment of isokinetic measurements on knee pain segregated by gender, age, and body mass index (BMI). 4. Assess the reliability of isokinetic knee measurements.

**Methods:** Patients (n=82) who fulfilled the inclusion criteria and signed an informed consent form were included. Inclusion criteria were: age 25 and 70 years; 30 males and 50 females who suffer a mild knee pain measured on Visual Analogue Scale (VAS) between 30 to 50 mm in either

knee (where maximum pain perception = 100 mm); Biodex System 4 isokinetic dynamometer measurement of peak torque, total work, muscle power, mean inflexion and extension at 180°/s and 240°/s in painful knee and contra-lateral knee, in males and females. The sample size was calculated using the outcome on the isokinetic valuation of peak torque under the specific analysis conditions of 240°/s in extension. Assuming a standard deviation (SD) of 8.5 Newton (Nm), 80 participants are necessary to detect differences of 5.5 points with  $\alpha = 0.05$  bilateral significance level, and a power of 80%.

**Results:** In the painful knee, the peak torque, total work and muscle power in flexion and particularly in extension movements are reduced compared with the contra-lateral painless knee ( $p < 0.05$ ). The isokinetic measurements in the painless knee declined considerably with age ( $p < 0.05$ ). Male muscle strength showed higher isokinetic values in the affected knee as well as painless knee compared with female ( $p < 0.05$ ). Reliability of measurement with interclass correlation coefficient (ICC) for intra-observer varied from 0.85 to 0.97 for isokinetic measurements. The ICC inter-observer for the variable peak torque varied from 0.80 to 0.93, reflecting an almost perfect ICC reliability match on the scale of Landis and Koch.

**Conclusions:** Patients with mild knee pain exhibit lower isokinetic values than the contra-lateral painless knee. This kinetic parameter can differentiate between two knees (pain vs. painless) and could be a tool to identify early knee OA. Isokinetic measurements can be a new diagnostic tool in incipient knee OA. However, standardized reference values of isokinetic measurements such as peak torque, muscle power, total work need be defined with respect to gender.

### 324 HIGH PREVALENCE OF CARDIOVASCULAR RISK FACTORS, METABOLIC SYNDROME AND CARDIOVASCULAR DISEASE IN PATIENTS WITH KNEE OSTEOARTHRITIS IN A PRIMARY CARE SETTING

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Patients with knee osteoarthritis (KOA), due to age, walking functional impairment and/or a high prevalence of obesity, are at a high risk of metabolic disorders and cardiovascular (CV) comorbidities, especially in patients referred to tertiary centers because of advanced disease for symptom control or surgery.

**Purpose:** To evaluate the frequency of metabolic disorders and CV comorbidity in patients with symptomatic KOA referred to a rheumatologist in a primary care setting.

**Methods:** Consecutive patients aged >50 y referred period to a rheumatology practice in a primary care setting because of symptomatic KOA during a 12-month period. Diagnostics related to CV comorbidity and/or glycemic or lipid disorders (hypertension, diabetes, ischemic heart disease, heart failure, cerebrovascular disorder, venous insufficiency or dyslipidemia) were obtained for each patient from the computerized data base (e-cap system) used by their family physicians. Patients with soft tissue disorders (e.g. shoulder tendinitis, plantar fasciitis, etc) adjusted for age were used as control group.

**Results:** One hundred and eighty-four patients with KOA and 254 with soft tissue conditions were included in this cross-sectional study. Patients with KOA but additional OA in other joints (hip, hands) were excluded. The frequencies of hypertension, hyperglycemia/diabetes and obesity significantly higher in patients with KOA compared to the control group (Table).