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REDUCED RATE OF HIP FRACTURE IN PATIENTS WITH HIP OR KNEE OSTEOARTHRITISM. Englund, I.F. Petersson
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Purpose: There are conflicting reports of the association between hip OA and hip fracture, and little is known of any possible relationship between knee OA and hip fracture. Hence our objective was to study the rate of hip fracture in hip and knee OA patients compared with the general population seeking health care using a comprehensive cohort study design.

Methods: Sweden has a publicly funded health care system with in- and outpatient health care utilization prospectively registered by the patient's personal identifier. We studied residents of the county of Skåne, Sweden by 31 Dec 2003 (total population 1.15 million) who sought health care at least once the following 4-years (2004-2007), thus being captured in the Skåne Health Care Register (SHCR). We identified all subjects aged 20 years or older with an ICD-10 code given by a physician for hip OA (M16), n=11 901, 57.1% women, or knee OA (M17), n=23 866, 58.8% women. To obtain hip fracture rates we calculated the person-time for each OA patient from the day of his/her first OA diagnosis within the period until the day of first hip fracture (S72.0, S72.1 or S72.2) or another censoring event (death, relocation, or end of study period by cross-referencing with the national population register). The person-time for each subject in the general population aged 20 years or older seeking health care (n=761 210, reference population) started to count by his/her first diagnostic code (any ICD-10 code) in the SHCR within the period until first hip fracture or another censoring event (in an identical fashion as for OA patients). We calculated the expected number of fractured OA patients by multiplying the person-time in OA patients with the rate of hip fracture in the corresponding stratum (age and sex) of the reference population. We calculated the expected (standardized) rate of hip fracture by using weights derived from the person-time from the OA patients. We then calculated standardized fracture-rate ratios by dividing the observed rate of hip fracture in OA patients by the expected rate. Thus, a fracture-rate ratio <1 equals a reduced rate of hip fracture among OA patients compared with the reference population.

Results: We observed 233 hip fractured hip OA patients (2.0%) while 271 (2.3%) were expected. We registered 398 hip fractured knee OA patients (1.7%) while 472 (2.0%) were expected. The observed rate of hip fracture in hip OA patients was 884 per 100 000 person-years (py) (expected rate 1028 per 100 000 py) and the observed rate in knee OA patients was 763 per 100 000 py (expected rate 904 per 100 000 py). The resulting age- and sex standardized fracture rate-ratio for having hip fracture in hip OA patients was 0.86 (95% confidence interval [95% CI] 0.75, 0.98) and in knee OA patients the ratio was 0.84 (95% CI 0.76, 0.93).

Table 1. Standardised Hip Fracture-Rate Ratio (95% Confidence Interval) Compared to General Population

	Total	Men	Women
Hip OA (n=11,901)	0.86 (0.75, 0.98)	0.83 (0.63, 1.07)	0.87 (0.75, 1.01)
Knee OA (n=23,866)	0.84 (0.76, 0.93)	0.99 (0.81, 1.19)	0.80 (0.71, 0.90)

Conclusions: There seems to be an inverse relationship between knee and hip OA and incident hip fracture except for male knee OA patients. Any causal mechanism(s) remain unclear, but could hypothetically be related to increased frequency of obesity in OA patients and (or) increased bone mineral density making OA patients in general less likely to fracture the hip when falling.

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THE ASSOCIATION BETWEEN RADIOGRAPHIC KNEE OSTEOARTHRITIS AND KNEE SYMPTOMS, FUNCTION, AND QUALITY OF LIFE 10-15 YEARS AFTER ANTERIOR CRUCIATE LIGAMENT RECONSTRUCTIONB.E. Øiestad¹, I. Holm², M.A. Risberg¹¹Norwegian research centre for Active Rehabilitation, Dept. of Orthopaedics, Oslo Univ. Hosp., Oslo, Norway; ²Dept. of Rehabilitation, Oslo Univ. Hosp., Rikshosp., Oslo, Norway

Purpose: The aim of this study was to investigate the associations between radiographic tibiofemoral knee osteoarthritis (OA) and knee pain, symp-

toms, function, and knee-related quality of life (QOL) 10-15 years after anterior cruciate ligament (ACL) reconstruction.

Methods: Two hundred and fifty-eight subjects were consecutively included at the time of ACL reconstruction and followed-up prospectively. The Knee Injury and Osteoarthritis Outcome Score (KOOS) was included at the 10-15 year follow-up to evaluate knee pain, other symptoms (symptoms), activities of daily living (ADL), sport and recreation (Sport/rec), and QOL. Each subscale includes a 0-100 scale, where 0 indicates extreme knee problems and 100 indicates a normal knee. Standing semi-flexed radiographs using SynaFlexer frame (Synarc Inc, Denmark) were taken 10-15 years after the ACL reconstruction and graded with the Kellgren and Lawrence (K&L) classification (grade 0-4). Two multivariate regression models were used to assess the association between each KOOS subscale as dependent variables and K&L grades as independent variables. The first model included the traditional cutoff (K&L \geq grade 2 vs < grade 2) for radiographic OA with adjustment for gender, age, and body mass index. The second model included each K&L grade as a dichotomous independent variable compared to a reference group (K&L grade 0/1) with adjustment for gender and age.

Results: Two hundred ten subjects (81%) consented to participate at the 10-15 year follow-up. Radiographic knee OA was detected in 71%; 47% had mild OA (K&L grade 2), 19% had moderate OA (K&L grade 3), and 5% had severe OA (K&L grade 4). No significant associations were detected between radiographic knee OA (K&L grade \geq 2) and pain, function, or QOL, respectively, but subjects with radiographic knee OA showed significantly increased symptoms (Beta -5.7, SE 2.5, p= 0.03). Severe radiographic knee OA was significantly associated with increased pain (Beta -15.8, SE 4.6, p=0.001), increased symptoms (Beta -15.4, SE 5.1, p= 0.003), impaired ADL (Beta -7.1, SE 3.3, p=0.035), impaired Sport/Rec (Beta -24.5, SE 7.9, p=0.002), and reduced QOL (Beta -21.1, SE 7.2, p=0.004) (Figure 1).

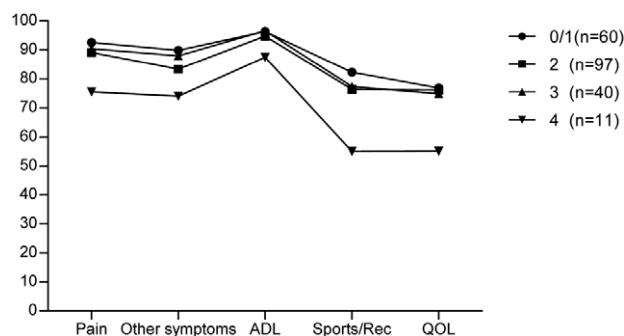


Figure 1. Mean values for the subscales of the Knee injury and Osteoarthritis Outcome Score for each Kellgren and Lawrence grade (0-4).

Conclusions: No significant associations were detected between radiographic knee OA (K&L grade \geq 2) and pain, function, or QOL, respectively, except for symptoms. But subjects with severe radiographic knee OA had significantly increased pain and symptoms, and impaired function compared to those without radiographic knee OA 10-15 years after ACL reconstruction. Future research should emphasize treatment methods to reduce the development of radiographic knee OA, but also treatment methods targeting reducing symptoms and increasing function.

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FACTORS ASSOCIATED WITH LOSS OF KNEE CARTILAGE VOLUME IN OLD ADULTS: A PROTECTIVE EFFECT OF LOW-DOSE ASPIRIN USEC. Ding¹, F. Cicuttini², G. Jones¹¹Univ. of Tasmania, Hobart, Australia; ²Monash University, Melbourne, Australia

Purpose: To determine factors associated with knee cartilage loss in older adults.

Methods: A total of 419 randomly selected subjects (mean 62 years, range 51-81, 50% female) were studied at baseline and 2.9 years later. T1-weighted fat-suppressed MRI of the right knee was performed to determine knee cartilage volume and defects.

Height, weight and radiographic osteoarthritis (OA) were measured by standard protocols. Fat mass was measured by dual energy x-ray absorptiometry (DXA).