

Future studies are indicated to evaluate prevalence and progression of 1st MTP OA using the Coughlin and Menz scales.

Table 1. Quadratically weighted kappa on the Coughlin and Menz scales

Rater	Coughlin Scale	Menz Scale	
		Joint Space Narrowing	Osteophyte
Rater 1	0.72	0.71	0.70
Rater 2	0.72	0.68	0.54
Rater 3	0.59	0.68	0.58
Rater 4	0.88	0.81	0.62
Rater 5	0.70	0.65	0.61

## 293

### THE RELATIONSHIP BETWEEN RETINAL VESSEL CALIBRE AND KNEE CARTILAGE AND BMLS

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**Purpose:** Whether the increase in vascular disease prevalence and mortality in OA populations is a result of co-occurrence of cardiovascular disease and OA, which are both common in the older population, is due to OA treatments or to the common association with reduced physical activity and/or obesity is unclear. One way to explore this non-invasively is to examine the relationship between changes in retinal microvasculature, which have been shown to be markers of generalized vascular pathology, and knee structural changes in an asymptomatic community-based population.

**Methods:** A community sample of 289 (61% women) aged 50–79 years with no knee symptoms underwent magnetic resonance imaging (MRI) of their dominant knee in 2003. Cartilage volume and bone marrow lesions (BMLs) were determined. All subjects also had retinal photographs taken from which retinal arteriolar and venular diameters were determined and summarized as the central retinal arteriolar equivalent (CRAE) and the central retinal venular equivalent (CRVE).

**Results:** Retinal venular diameter was significantly wider in subjects with a BML compared with subjects without a BML [mean (SD)] 214.2 (2.8)  $\mu$ m versus 207.5 (1.1)  $\mu$ m respectively independent of age, gender and BMI. A trend for decreased medial tibial cartilage with increasing CRAE was also observed (regression coefficient  $-2.70 \mu$ l, 95%CI  $-5.74, 0.5$ ,  $p=0.08$ ).

**Conclusions:** These findings suggest that vascular pathology, indicative of inflammatory processes, is associated with early structural knee changes. The role of micro-vascular changes in the pathogenesis of OA warrants further investigation.

## 294

### DIETARY ANTIOXIDANTS AND HIP CARTILAGE VOLUME IN ADULTS WITHOUT CLINICAL HIP OSTEOARTHRITIS

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**Purpose:** Although there is evidence for an association of dietary antioxidants with knee joint health, little data is available for the hip joint. With increasing severity of radiographic hip osteoarthritis (OA), hip cartilage volume reduces. The aim of this study was to investigate the relationship between dietary antioxidants and hip cartilage volume in adults without clinical hip OA.

**Methods:** 120 participants (mean age 67 years, 55% female), with no history of hip injury or symptoms were recruited. Dietary intakes of antioxidant vitamins were estimated from a food frequency questionnaire during 1990–1994. Participants underwent magnetic resonance imaging of their right hip in 2009. Femoral head cartilage volume and bone area were assessed using validated methods.

**Results:** Intake of alpha-carotene was negatively associated with hip cartilage volume ( $B = -108.8$ , 95% CI  $-212.6$  to  $-5.1$  per standard deviation increase in dietary intake,  $P=0.04$ ). There was a tendency towards a negative association between beta-carotene intake and hip cartilage

volume ( $B = -93.8$ , 95% CI  $-200.3$  to  $12.8$ ,  $P=0.08$ ). Intakes of vitamin C, vitamin E, and other carotenoids were not associated with hip cartilage volume.

**Conclusions:** Contrary to our hypothesis that dietary antioxidants are positively associated with hip cartilage volume, higher intakes of alpha- and beta-carotene were associated with reduced hip cartilage volume in adults without clinical hip OA, suggesting an adverse effect. Although our findings will need to be confirmed in longitudinal studies, they suggest that dietary modification of antioxidants intake may be one strategy in the prevention of hip OA.

## 295

### ELABORATION AND VALIDATION OF A QUESTIONNAIRE ASSESSING EXPECTATIONS OF PATIENTS WITH KNEE OSTEOARTHRITIS: THE KNEE EXPECTATIONS QUESTIONNAIRE (KEQ)

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**Purpose:** Expectations of patients are not usually taken into consideration for management strategies in OA. We aimed to develop a questionnaire assessing expectations of patients regarding knee OA management.

**Methods:** To generate items of the pre-questionnaire, the extensive document reporting a qualitative analysis of interviews with 81 patients with knee OA was sent to 10 experts and a Delphi procedure was adopted. A forward-backward translation technique was used to provide an English version of the pre-questionnaire. Eighty physicians (64 general practitioners, 16 rheumatologists) recruited 566 patients with knee OA to test the pre-questionnaire. An item reduction was performed according to metric properties of each item (floor and ceiling effects, percentage of missing answers, correlations with other items). Reliability of the questionnaire was tested by use of Chronbach  $\alpha$  coefficient. Construct validity was tested by use of divergent validity, and exploratory and confirmatory factor analyses.

**Results:** In total, 60-items were extracted from the analysis of the qualitative study and three Delphi rounds were needed to obtain consensus on a 33-items pre-questionnaire assessing expectations of patients regarding knee OA management. Consensuses were easily found for English and French versions of the pre-questionnaire. Files of 524 patients were available for analysis and the item reduction process led to an 18-item questionnaire (range 0–100). Chronbach coefficient was 0.91 (95% CI 0.89–0.92). Divergent validity was observed with knee pain score ( $r=0.19$ ), WOMAC function score ( $r=0.22$ ), and physical and mental scores of the SF-12 ( $r=0.07$  and  $0.22$ , respectively). Exploratory factor analysis extracted 3 main factors with Eigen values of 11.81, 2.81, and 1.56 explaining 46% of the variance. Each factor was easily characterized, factor 1 (11-items) representing expectations for education, factor 2 (4-items) expectations for technical and human supports, and factor 3 (3-items) expectations for physicians' empathy. Confirmatory factor analyses confirmed that intra-factor correlations were higher than inter factors ones.

**Conclusions:** We propose a new 18-items questionnaire assessing patients' expectations concerning knee OA management with good content and construct validities. Test-retest reliability and sensitivity to change should now be tested before clinical use.

## 296

### CORRELATION BETWEEN LOCALISATION OF 4° CHONDRAL LESIONS IN KNEES AND THE CLINICAL RESULT AFTER AUTOLOGOUS CHONDROCYTE TRANSPLANTATION

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**Purpose:** The method of the ACT demands to repair deep and huge size cartilage defects with hyalin respectively hyalin like cartilage. Previous studies describe only rare the effect of the ACT in knees regarding to their chondral defect region.

**Methods:** This monocenter study presents the correlation between the localisation of 4° chondral lesions in knees and the clinical outcome after ACT treatment. The clinical evaluation was performed using the subjective and the objective part of the IKDC2000 score for 52 patients before and after treated with ACT (meanfollowup 38.6 months).

**Results:** 52(35m/17f) patients in the age between 18 and 45 years (mean age 38 years) participate in this study. The defect size average is 6.13 cm<sup>2</sup>.

Concerning to the cartilage defect localization we develop five different cartilage defect region groups. Group 1 (medial femoral, n = 15), Group 2 (lateral femoral, n = 10), Group 3 (trochlear, n = 10), Group 4 (retropatellar, n = 8) and Group 5 (combined defect regions, n = 9). The follow up examination shows in all five groups a significant rise concerning to the subjective and objective IKDC2000 score after ACT treatment ( $p < 0.001$ ). The subjective part of the IKDC2000 score shows significant poorly post-operatively results for the patients in the groups 4 and 5 than in the groups 1, 2, 3 ( $p < 0.001$ ), where as there is no significant difference between the 5 groups pre-operatively. Regarding to the objective part of the IKDC2000 score with a view to the chondral lesion area there are no significant differences between the pre and postoperative evaluated IKDC2000 score values ( $p < 0.001$ ).

**Conclusions:** The presented data indicate autologous chondrocyte transplantation as an effective and safe option for the treatment of large full thickness cartilage defects in knee joints with significant better subjective results for patients with cartilage defects in the medial or femoral condyle and trochlear region than in retropatellar or combined cartilage lesion regions.

## 297

### IS RADIOLOGY A DETERMINANT OF PAIN, STIFFNESS AND FUNCTIONAL DISABILITY IN KNEE OSTEOARTHRITIS?

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**Purpose:** There is a widespread belief of discordance between clinical and radiological features of knee osteoarthritis (KOA). This discordance has been reported by many and the possible explanations have also been given. Much emphasis has been given to lack of uniformity and understanding of X-ray views and to patello-femoral arthritis being overlooked. Although many factors may be available for study on X-ray's, it is surprising to note that majority of studies citing discordance have studied only those radiological features which are incorporated in KL grades - viz. osteophytes, joint space width (JSW), subchondral sclerosis and tibio-femoral alignment (TFA). Radiological anomalies in KOA may not be limited to these four and other features in and around the joint also need to be studied before citing a definite comment on discordance or consonance between clinical and radiographic KOA.

We hypothesized that the discordance could be due to limited radiological variables studied. This study has essentially analyzed many more radiological features than in previous studies to seek an association between clinical and radiographic features

**Methods:** This cross-sectional study consists of men and women aged 40 years or more who fulfilled ACR clinical and radiographic criteria for KOA. For inclusion, patients were required to have knee pain of more than 6 months duration and at least one pain dimension of the WOMAC pain score above 20%. 180 cases of primary KOA could be enrolled for the study. VAS for knee pain and knee specific WOMAC index for pain, stiffness and disability were recorded. Five additional radiological features apart from those in KL grading system were recorded by two authors who were blinded to the clinical diagnosis. The variables significantly associated were analyzed by linear regression model.

**Results:** Pain was significantly associated with increasing KL Grades, physical function was nearly significant and stiffness was not. On analysis of individual radiological features, WOMAC-pain was significant with subchondral sclerosis, joint space width and Tibio-femoral alignment although the correlation was weak. VAS-pain was significant with later two and also with articular incongruity. Functional disability was associated with medial joint space narrowing, tibiofemoral alignment, loose bodies and juxta articular osteopenia. However in linear regression model pain and stiffness were significantly associated with articular incongruity; functional disability and total clinical scores with juxtaarticular osteopenia

**Conclusions:** The causation of knee pain in OA has been extensively studied although discordance has been noted between its clinical and radiographic profile. This study was undertaken to resolve a much debated issue as to why clinical features do not correlate significantly with radiological. The discordance noted by many authors is primarily due to the limitations of outcome measures in their study. When the radiological variables were extended beyond those included in KL Grades, articular incongruity manifesting as diminished Medial-joint space width and Tibiofemoral alignment, was a truer representative of pain and

stiffness whereas juxtaarticular osteopenia correlated well with physical disability and clinical severity.

## 298

### QUALITY OF LIFE'S IMPAIRMENT BY MOOD DISORDERS IN NECK OSTEOARTHRITIS PATIENTS

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**Purpose:** to assess the presence of mood disorders (MD) and its influence on neck osteoarthritis (NO) patients' symptoms.

**Methods:** design-descriptive and prospective. Inclusion criteria: NO patients diagnosed by grade I-II-III of the Kellgren-Lawrence X-Ray, score from the Institut Ferran de Reumatologia (Clínica CIMA, Barcelona) outpatient clinics from January 2008 to June 2009. We also collected the number of cervical spine levels impaired by X-Ray. Patients with major psychiatric disorders already diagnosed (Depression, Anxiety) were excluded. We collected the following data to assess NO symptoms and psychological symptoms (mood disorder symptoms): NECK score (neck pain and neck disability, quality of life (SF36), anxiety and depression (CES-D, Hamilton, STAI). Patient's follow-up lasted 12 months, and all data were collected at baseline and at the end of the study. SPSS v.17 was used to compare and correlate all means by t-Student, Wilcoxon and Spearman measures.

**Results:** 15 NO patients were recruited (14 women). Mean age 55.6 years ( $\pm 7.18$ ). Symptomatology onset 46.93 years ( $\pm 7.47$ ), mean time of evolution at first evaluation visit 8.06 years ( $\pm 5.20$ ). 40% of patients had had sick-leave from work. The higher the levels of NO affected, the higher the rate of disability ( $p = 0.006$ ).

Higher (worse) scores of both mood disorder symptoms and quality of life in those patients who had higher intensity and duration of neck pain ( $p < 0.05$ ).

Test	X $\pm$ SD		P
	Baseline visit	12-month follow-up visit	
NECK	38.21 $\pm$ 14.75	22.36 $\pm$ 18.77	0.004*
HAD-A	7.64 $\pm$ 5.09	7.27 $\pm$ 4.12	0.809
HAD-D	5.42 $\pm$ 5.38	4.27 $\pm$ 5.15	0.552
CES-D	18.92 $\pm$ 12.30	16.81 $\pm$ 11.47	0.284
STAI-E	53.75 $\pm$ 31.92	38.86 $\pm$ 30.63	0.047*
SF36 DC	45.50 $\pm$ 17.23	56.54 $\pm$ 26.77	0.017*
SF36 RF	67.85 $\pm$ 37.24	59.09 $\pm$ 42.23	0.474
SF36 SM	59.14 $\pm$ 24.21	71.27 $\pm$ 23.37	0.024

**Conclusions:** the aim of our study was to enhance the importance of NO in our community. It reflects a painful condition that can affect quality of life, work and mood. In our study, we observed minor anxious and depressive symptoms in NO patients. It exists an association between the intensity and duration of NO symptoms and the presence of mood disorder symptoms. Disability and work interference is associated with the presence of pain and the higher number of NO levels impaired, but not to the presence of mood disorder symptoms. The low amount of patients was due to the strict inclusion criteria, and larger group of patients will be needed in order to confirm these preliminary data.

## 299

### THE RELATIONSHIP BETWEEN OBESITY AND FOOT PAIN IS RELATED TO FAT MASS AND FAT DISTRIBUTION BUT NOT MUSCLE MASS

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**Purpose:** To examine the relationship between obesity, body composition and foot pain as assessed by the Manchester Foot Pain and Disability Index (MFPDI).

**Methods:** 136 subjects aged 25-62 years were recruited as part of a study examining the relationship between obesity and musculoskeletal health. Foot pain was defined as current foot pain and pain in the last month, and an MFPDI score of  $\geq 1$ . Body composition (tissue mass and fat distribution) was measured using dual energy x-ray absorptiometry.