Methods: Fifteen patients with HCVrA & 15 RA patients were subjected to: full history, clinical examination, Ultrasonography assessment using a Philips HDI 5000 system with 12–5 MHz Broadband Linear Transducer. Both knees were examined by one ultrasonographer who was blind to clinical data.

Results: In HCVrA, synovial hypertrophy was detected in 10% of knees (3/30) of which 66% (2 knees) exhibited Doppler signals, while in RA it was detected in 70% (21/30) of which 95% (20 knees) exhibited Doppler signals. Significant difference was found between the two groups (p<0.01). Knee effusion was detected in 80% (24/30), & 86% (26/30), of patients with HCVrA & RA respectively, no significant difference was found. Cartilage degeneration was detected in 76% (23/30) & 83% (25/30), of patients with HCVrA & RA respectively. Bone erosions were detected in 20% (6/30) in the RA group. It was not detected in HCVrA patients. In HCVrA, there was no correlation between the presence of synovial hypertrophy with respect to cartilage degeneration and knee effusion.

Conclusions: We found no specific ultrasonographic feature specific for HCV related knee arthritis, the knee effusion is a predominant feature and the hypertrophied synovium is not frequently found. No destructive lesions were found to be related to the disease itself; however this should be confirmed by histopathological assessment.

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AB1052 **QUALITATIVE SYSTEMATIC REVIEW: LACK OF CONSENSUS ON THE CLASSIFICATION CRITERIA FOR DIFFUSE IDIOPATHIC SKELETAL HYPEROSTOSIS**

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Background: Diffuse idiopathic skeletal hyperostosis (DISH) is a condition characterized by flowing ossifications of the spine with or without ossifications of entheses elsewhere in the body.[1,2] Studies on prevalence and pathogenesis of DISH use a variety of partially overlapping combinations of classification criteria, making meaningful comparisons across the literature difficult.[3,4]

Objectives: The aim of this study was to systematically summarize the criteria available to classify or diagnose DISH to aid in the development of a more uniform set of diagnostic and/or classification criteria.

Methods: A search was performed in Pubmed, Embase, Cochrane Library and Web of Science using the term DISH and its synonyms. Articles were included when two independent observers agreed that the articles proposed a new set of classification criteria for DISH. All retrieved articles were evaluated for methodological quality and the presented criteria were extracted. The criteria were placed into one of three groups being "descriptive studies", "sets of criteria for dichotomous diagnosis" or "sets of criteria with consecutive phases".

Results: A total of 24 articles met the inclusion criteria. Two articles were descriptive studies, 11 contained dichotomous classification criteria and 11 described a set of criteria with consecutive phases. In all articles spinal hyperostosis was required for the diagnosis of DISH. Peripheral, extraspinal manifestations were included as a (co-)requirement for the diagnosis DISH in five articles. Most discrepancies revolved around the threshold for the number of vertebral bodies affected and to defining different developmental phases of DISH. More than half of the retrieved articles described a dichotomous set of criteria and did not consider the progressive character of DISH.

Conclusions: In our systematic review we summarize the available different classification criteria for DISH and highlight the lack of consensus on the diagnosis of (early) DISH. Consensus criteria, including consecutive phases of new bone formation that characterize DISH can be developed based upon established diagnostic and/or classification criteria.

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AB1053 **A NOVEL METHOD FOR IDENTIFYING RADIOGRAPHIC BASELINE RISK OF OSTEOARTHRITIS USING AN ANISOTROPY-BASED TEXTURE ANALYSIS ALGORITHM: DATA FROM THE OSTEOARTHRITIS INITIATIVE**

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Background: Osteoarthritis (OA) is the most common form of arthritis and affects disproportionately the knee. Recent developments in imaging techniques showed that OA is not just a joint disease but also involves progressive changes in the subchondral/subarticular bone area of the tibia. On top of the accepted method of measuring the joint space width, assessments of the trabecular bone structure in selected regions of interest (ROI) in conventional X-rays may be offering an alternative method for quantifying the risk and progression of this disease.

Objectives: The accepted method for assessing OA - Joint space width (JSW) and Joint Space Area (JSA) measurements - have limited capabilities in regard to early identification and reproducible follow-ups of the disease. The objective of this abstract is to evaluate the trabecular bone structure as an area for early identification of OA risk, applying texture anisotropy algorithms and subsequently comparing the results to standard JSW and JSA measurements.

Methods: This study was performed using data from the Osteoarthritis Initiative. The image data set was restricted to female, Caucasian, right knee exams recorded with the same modality. Furthermore we selected exams which had a KL grade of 0 at the baseline exam and a deteriorating KL grade ≥2 at the 96 month follow up. 22 cases fulfilled these criteria and we selected 22 matching controls with no signs of OA at the 96 month follow up. The selected region of interest (ROI) for the analysis of the radiographic texture consisted of four ROIs in the subchondral tibia and one additional ROI in each femur condyle – in total 6 ROIs. For each individual ROI, the degree of texture anisotropy was calculated and compared between case/control. In addition, JSW & JSA were calculated in both groups using a proprietary software-based method (ImageBiopsy Lab, Vienna, Austria).

Results: Whereas the JSW and the JSA measurements did not yield any significant differences with respect to their mean values (Cohen's d =0.139 and 0.028), the calculated texture parameters showed that differences in values between cases and controls can be found in two of the subchondral ROIs (ROI1&2) with Cohens'd values of 0.625 and 0.831, respectively. With respect to selected patient, the differences in anisotropy results were significant using these texture parameters.

Conclusions: Our results indicate that using the selected radiographic texture parameters, an early identification of patients at risk for developing OA using conventional X-rays can be achieved. This may offer an additional method for quantifying the risk of baseline OA. This is supported by the Cohen's d values that are by definition relatively large (0.625 and 0.831). Ongoing research focuses on larger sample set validation and the use of such algorithms for additional applications, such as the early identification of fracture risk.

AB1054 **QUANTITATIVE ULTRASOUND FOR ASSESSMENT OF DISEASE ACTIVITY IN PATIENTS WITH RHEUMATOID ARTHRITIS: RELIABILITY AND CONSTRUCT VALIDITY**

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Background: Joint ultrasound is an integral part of assessment of patients with rheumatoid arthritis (RA). Semi-quantitative grading of ultrasound is subjective whereas quantitative ultrasound (QUS) may be more objective.

Objectives: To evaluate the reliability and construct validity of QUS of wrist joints in patients with RA.

Methods: We studied 95 patients with RA. Following parameters were studied: swollen and tender joint counts (SJC and TJC), patient and evaluator global assessment (PGA, EGA) and disease activity score (DAS28). Patients were classified as active disease and disease in remission as per expert clinician opinion. Colour Doppler ultrasound (CDUS) of wrists was done to obtain semiquantitative grading. Scans were processed in image analysis software (Photoshop CS4) to obtain the following: colour fraction of intrasynovial (IS) vascular signals (CF(IS) = pixel area of IS vascular signals/pixel area of entire IS area (area(IS)), CF(total) (pixel area of both IS and extrasynovial vascular signals/area (IS)) and number of IS (N(IS)) and extrasynovial (N(ES)) vascular signals. Images were stored and independently rated for both CDUS and QUS by two different raters blinded to each other's rating.

Results: Demographics of patients were: mean age 48±16.7 years, mean disease duration 24 months (range 4–600), mean DAS28 of 2.98±1.18 and 40% (38/95)