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POS1400

#### A SYSTEMATIC REVIEW OF INTERNATIONAL GUIDELINES REGARDING THE ROLE OF RADIOGRAPHY IN THE DIAGNOSIS OF OSTEOARTHRITIS

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**Background:** A substantial proportion of primary care osteoarthritis (OA) consultations are associated with an X-ray request<sup>(1,2)</sup>. Uncertainty exists regarding the ability of radiography to improve a clinical OA diagnosis, and the over-use of radiography may lead to inappropriate referrals due to severe radiographic features that do not correlate with patients' symptoms. Additionally, there are cost implications of unnecessarily imaging such a prevalent disease. As evidence questions the utility of routine radiography in OA, the extent to which radiography is supported by international guidelines is unknown.

**Objectives:** To undertake a systematic review and narrative synthesis of UK and international guideline recommendations on the role of radiography in the diagnosis of OA.

**Methods:** A systematic search of eleven electronic databases (including EMBASE, MEDLINE CINAHL, Epistemikos and Guideline Central) and the websites of nine professional organisations (including NICE, Royal College of Radiologists (RCR), EULAR, and the American College of Radiology (ACR)) identified the most recent evidence-based guidelines produced by professional organisations on the role of imaging in OA. Guidelines not addressing the role of radiography in the diagnosis of OA were excluded, as were non-English and spinal OA guidelines. Each title was screened by one reviewer whilst each abstract and full text underwent dual screening. A single reviewer, using a standard proforma, undertook data extraction. Each guideline was independently appraised by two reviewers using the AGREE II tool. A narrative synthesis of the nature and consistency of OA radiographic recommendations was performed.

**Results:** 18 evidence-based OA guidelines published between 1998-2019 were included. These guidelines considered OA at any joint (n=8), or at the knee (n=3), hip (n=2), hand (n=2), wrist (n=1), foot (n=1), and ankle (n=1). Seven guidelines were produced by European organisations; four guidelines were produced by EULAR. Guidelines were targeted at general practitioners (n=11), radiologists (n=7), rheumatologist (n=4) and orthopaedic surgeons (n=3). Using the AGREE II tool, the identified guidelines scored highly on rigour of development (mean score 69%) but poorly on applicability (32%). All 18 guidelines recommended X-rays as the first-line modality, where imaging was indicated. A clinical diagnosis of OA without radiographic confirmation was recommended by all eleven guidelines produced by organisations represented general practitioners, with seven guidelines justifying this due to a poor correlation between radiographic features and clinical symptoms. Only three guidelines explicitly discouraged the routine use of radiography for the diagnosis of OA and only two guidelines reassured practitioners of a low probability of missing serious pathology when not routinely requesting radiographs. Guidelines produced by organisations representing radiologists were more supportive of radiography. The ACR recommended radiographic confirmation in patients suspected to have OA at the hand, wrist, hip, knee, ankle, and foot. Conversely, the RCR recommended radiographic confirmation in patients suspected to have OA at the hand, feet, and hip, but not the knee.

**Conclusion:** Differences in guideline recommendations on the utility of radiography in OA appear related to country/region, professional organisation, and joint. The use and utility of radiography in OA may need to be reviewed in light of a shift towards remote consultations, a change that has been accelerated by COVID-19 in many countries.

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POS1401

#### ASSESSMENT OF INTERREADER RELIABILITY IN SCORING PATIENTS WITH HAND OSTEOARTHRITIS AND PSORIATIC ARTHRITIS BY FLUORESCENCE OPTICAL IMAGING

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**Background:** Fluorescence Optical Imaging (FOI) utilises the fluorophore indocyanine green (ICG) to reflect enhanced microcirculation in hand and finger joints due to inflammation.

**Objectives:** We wanted to assess the interreader reliability of FOI enhancement in patients with hand osteoarthritis (OA) and psoriatic arthritis (PsA). Furthermore, predefined typical morphologic patterns were included to determine the ability of FOI to discriminate between both diagnoses.

**Methods:** An atlas with example images of grade 0-3 in different joint groups and typical morphologic patterns ('streaky signals'[1], 'green/blue nail sign'[2], 'Werner sign'[3,4], and 'Bishop's crozier sign') of PsA and hand OA was created. Two readers scored all joints in both hands (30 in total) of 20 cases with hand OA and PsA. The cases were randomly mixed and both readers were blinded to diagnosis. Each joint was rated on a semiquantitative scale from 0 to 3 in five different images (PrimaVista Mode (PVM), phase 1, 2 (first and middle image), and 3) during the FOI sequence according to the scoring method FOIAS (fluorescence optical imaging activity score) [1,3]. Interreader reliability on scoring joint enhancement was calculated using linear weighted Cohen's kappa ( $\kappa$ ). Agreement on diagnosis (hand OA vs. PsA) and different morphologic patterns was assessed by calculating (regular) Cohen's kappa.

**Results:** Overall agreement on scoring joint enhancement (all phases) was substantial ( $\kappa = 0.75$ ), with greatest consensus in phase 2 first ( $\kappa = 0.75$ ) and lowest agreement in phase 1 ( $\kappa = 0.46$ ). Reliability varied in different joint groups (wrist, MCP, (P)IP, DIP), with almost perfect overall agreement on PIP joint affection ( $\kappa = 0.81$ ), substantial agreement on wrist ( $\kappa = 0.69$ ) and DIP joint affection ( $\kappa = 0.63$ ), and moderate agreement on MCP joint affection ( $\kappa = 0.49$ ) across all phases. Consensus on morphologic patterns showed overall fair agreement ( $\kappa = 0.37$ ) with a similar kappa value on the ability to discriminate between both diagnoses ( $\kappa = 0.3$ ).

**Conclusion:** Joint enhancement in FOI can be reliably assessed using a predefined scoring method. The ability of FOI to differentiate between hand OA and PsA seems to be limited. Clearer definition and more training might be needed to better agree on morphologic patterns in FOI.

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POS1402

#### HIGHER PREVALENCE OF SUBCLINICAL ATHEROSCLEROSIS IN PSORIATIC ARTHRITIS PATIENTS

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**Background:** Psoriatic arthritis (PsA) patients have a higher risk of developing a cardiovascular (CV) event than the general population due to an increased prevalence of traditional CV risk factors and to disease characteristics such as disease duration and activity. The carotid ultrasound (US) is a non-invasive diagnostic tool that can detect the presence of subclinical atherosclerosis which is directly associated with the risk of developing a CV event.

**Objectives:** The aim of this study is to compare the prevalence of subclinical atherosclerosis detected by carotid US in PsA patients and controls.