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IDENTIFYING POTENTIAL CLASSIFICATION CRITERIA FOR CALCIUM PYROPHOSPHATE DEPOSITION DISEASE (CPPD): RESULTS FROM THE INITIAL PHASES

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Background: Classification criteria for calcium pyrophosphate deposition disease (CPPD) will facilitate clinical research on this common crystalline arthritis. ACR/EULAR are jointly sponsoring development of CPPD classification criteria using a multi-phase process.

Objectives: To report preliminary results from the first two phases of a four-phase process for developing CPPD classification criteria.

Methods: CPPD classification criteria development is overseen by a 12-member Steering Committee. Item generation (Phase I) included a scoping literature review of five literature databases and contributions from a 35-member Combined Expert Committee and two Patient Research Partners. Item reduction and refinement (Phase II) involved a Combined Expert Committee meeting, discussions among Clinical, Imaging, and Laboratory Advisory Groups, and an item rating exercise to assess the influence of individual items toward classification. The Steering Committee reviewed the modal rating score for each item (range -3 [strongly pushes away from CPPD] to +3 [strongly pushes toward CPPD]) to determine items to retain for future phases of criteria development.

Results: Item generation yielded 420 items (312 from the literature, 108 from experts/patients). The Advisory Groups eliminated items they agreed were unlikely to distinguish between CPPD and other forms of arthritis, yielding 127 items for the item rating exercise. Fifty-six items, most of which had a modal rating of +/- 2 or 3, were retained for future phases (see Table 1). As numerous imaging items were rated +3, the Steering Committee recommended focusing on imaging of the knee, wrist, and one additional affected joint for calcification suggestive of CPP crystal deposition.

Conclusion: The ACR/EULAR CPPD classification criteria working group has adopted both data- and expert-driven approaches, leading to 56 candidate items broadly categorized as clinical, imaging, and laboratory features. Remaining steps for criteria development include domain establishment, item weighting through a multi-criteria decision analysis exercise, threshold score determination, and criteria validation.

Table 1. Categories of items retained for future phases of classification criteria development

Age in decade at symptom onset
Acute inflammatory arthritis (e.g. knee, wrist, 1 st MTP joint*)
Recurrence and pattern of joint involvement (e.g. 1 self-limited episode, >1 self-limited episode)
Physical findings (e.g. palpable subcutaneous tophus*, psoriasis*)
Co-morbidities and family history (e.g. Gitelman disease, hemochromatosis, familial CPPD)
Osteoarthritis location and features (e.g. 2 nd or 3 rd MCP joint, wrist)
Synovial fluid findings (e.g. CPP crystals present, CPP crystals absent on 1 occasion* or 2 occasions*, monosodium urate crystals present*)
Laboratory findings (e.g. hypomagnesemia, hyperparathyroidism, rheumatoid factor*, anti-CCP*)
Plain radiograph: calcification in regions of fibro- or hyaline cartilage*
Plain radiograph: calcification of the synovial membrane/capsule/tendon*
Conventional CT: calcification in regions of fibro- or hyaline cartilage*
Conventional CT: calcification of the synovial membrane/capsule/tendon*
Ultrasound: CPP crystal deposition in fibro- or hyaline cartilage*
Ultrasound: CPP crystal deposition in synovial membrane/capsule/tendons*
Dual-energy CT: CPP crystal deposition in fibro- or hyaline cartilage*
Dual-energy CT: CPP crystal deposition in synovial membrane/capsule/tendon*
*Potential negative predictor *Assessed in the knee, wrist, and/or 1 additional affected joint

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DUAL ENERGY CT HAS PROGNOSTIC VALUE IN GOUT BEYOND STANDARD CLINICAL MEASURES: A BEST EVIDENCE SYNTHESIS

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Background: Dual Energy CT Scan (DECT) can detect monosodium urate crystal deposits in multiple tissues. EULAR gout guidelines (Richette, 2020) recognized the value of DECT in making a clinical diagnosis when joint aspiration is difficult. DECT shows crystal deposits in almost 50% of gout patients without tophi (Dalbeth, 2017). Tophi are known to predict all-cause and cardiovascular mortality (Vincent 2017, Perez-Ruiz 2013) and it is plausible that DECT could as well. A prognostic measure should be reliable and valid. DECT validity would be evident for death, disability and distress.

Objectives: This study used a best evidence synthesis approach to synthesize the evidence for DECT as a prognostic measure in gout.

Methods: PUBMED and EMBASE were searched from initiation to December 2019; keywords (Dual Energy Computed Tomography OR DECT, gout,