baseline. There were improvements in gray-scale synovitis total score and intensity of PDS in patients with non-erosive disease while patients with erosive disease worsened after the 3rd year of follow up. On the other hand, the progression of US-determined osteophyte formation was observed in both groups but were significantly higher in patients with erosive compared with non-erosive disease after the third year of follow up.

Conclusion: The findings of this study show that pain and number of painful and clinically swollen joints associated with US-detected synovial changes and osteophyte formation is more severe in patients with erosive HOA than in patients with non-erosive disease. In addition, osteophyte formation is more likely to progress independent of synovial inflammation.

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THU0454 CONDITIONED PAIN MODULATION AND TEMPORAL SUMMATION IN PERSONS WITH HAND OSTEOARTHRITIS AND ASSOCIATIONS WITH PAIN SEVERITY

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Background: Conditioned pain modulation (CPM) assesses adequacy of descending modulatory pathways. Temporal summation (TS) reflects ascending facilitation of nociceptive signals in the central nervous system (central sensitization). Inadequate CPM and enhanced TS of pain are both known to contribute to pain in chronic pain conditions. Different pain phenotypes may respond to different treatments strategies and may therefore be important to assess in clinical practice. CPM has not previously been explored in persons with hand OA and its relation to pain severity is unknown.

Objectives: To examine the prevalence of CPM and central sensitization alone or in combination in persons with hand OA, and to explore their associations with pain severity.

Methods: These cross-sectional analyses included 248 participants with hand OA from the Nor-Hand study. Participants reported hand pain severity during the last 24 hours on a numeric rating scale (NRS, 0-10). CPM was tested with pressure pain threshold (PPT) at the left wrist before (PPT1) and during (PPT2) a painful ischemic cuff conditioning stimulus at the opposite upper arm. Adequacy of CPM was calculated as CPM-ratio (PPT1/PPT2). CPM-ratio < 1 (increased PPT) indicates adequate CPM, while CPM-ratio ≥ 1 (unchanged/decreased PPT) indicate inadequate CPM. TS, increase in perceived pain to repetitive noxious stimuli as a marker of central sensitization, was assessed using mechanical punctate probes. We defined presence of TS as an increase in pain of ≥ 2 points on an NRS (0-10) during a repetition of ten punctate stimuli. We analyzed whether groups having adequate CPM and no TS, inadequate CPM only, TS only, or having both inadequate CPM and TS were associated with hand pain severity. We used linear regression analysis adjusted for age, sex, BMI, use of analgesics, education level, sleep disturbance, the Pain Catastrophizing Scale, the Hospital Anxiety and Depression Scale and radiographic hand OA severity (Kellgren Lawrence sum score).

Results: Of the 248 participants included, 90% were women, median age was 61 (IQR 57, 66) years and mean BMI was 26.3 (SD 4.7) kg/m². CPM-ratio ranged from 0.4 to 1.6 (mean 0.9, SD 0.2), and 32% showed inadequate CPM. Presence of TS was found in 46% of the study population. Overall, 38% had no TS and adequate CPM, 29% had inadequate CPM only, 16% TS only and 16% had both (Table). We found that

persons with inadequate CPM only and TS only reported higher pain severity than persons with adequate CPM and no TS (Table). Those with both inadequate CPM and TS reported similar levels of pain as persons with inadequate CPM only and TS only.

Abstract THU0454 – Table 1. Associations of conditioned pain modulation (CPM) and temporal summation (TS) with pain severity in persons with hand OA, (n=248)

	Mean (SD) NRS hand pain	Adjusted beta (95%CI)
No TS and adequate CPM (n=96)	3.2 (1.8)	0.0 (ref.)
Inadequate CPM-only (n=39)	3.9 (2.3)	1.1 (0.4, 1.8)
TS-only (n=73)	4.2 (2.5)	0.8 (0.3, 1.4)
TS and inadequate CPM (n=40)	4.6 (2.3)	1.1 (0.4, 1.8)

Adjusted for age, sex, BMI, analgesics, education, sleep disturbance, Pain Catastrophizing Scale, the Hospital Anxiety and Depression Scale and Kellgren Lawrence sum score.

Conclusion: One third of persons with hand OA had inadequate CPM. Those with inadequate CPM, central sensitization or both reported higher pain severity than persons without any signs of altered central pain processing. Having both inadequate CPM and central sensitization was not associated with higher pain severity than having only one of the features. Our results are the first to demonstrate such a heterogeneous variety of clinically relevant pain phenotypes in persons with hand OA.

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THU0455 PHARMACOKINETICS (PK) OF A SINGLE INTRARTICULAR (IA) INJECTION OF CNTX-4975 (TRANS-CAPSAICIN) VS TOPICAL 8% CAPSAICIN PATCH

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Background: CNTX-4975 is in phase 3 trials for treatment of moderate to severe pain associated with knee osteoarthritis (OA). PK data from prior studies of CNTX-4975 in subjects with moderate to severe knee OA pain suggest low systemic and short-term exposure, similar to the FDA-approved topical capsaicin 8% patch.

Objectives: We compared single-dose systemic exposure to *trans*- and *cis*-capsaicin following IA injection of CNTX-4975 (>99.5% *trans*-capsaicin, <0.5% total impurities) with 8% capsaicin patch in subjects with moderate to severe knee OA pain.

Methods: This open-label, crossover study enrolled adults aged 50–75 y with moderate to severe knee OA pain in ≥ 1 knee (most painful knee, index knee; nonindex knee, no to mild pain [0–1; NPRS 0–4 scale]). Subjects were randomized 1:1 to 2 sequences: A (CNTX-4975 1 mg IA, index knee) followed by B (topical capsaicin 8% patch, posterior rib cage for 60 min) or BA sequence, with ≥ 7-day washout between treatments. Plasma samples for *trans*- and *cis*-capsaicin concentration assays were taken before and at specified times after study treatment. PK parameters, including maximum observed plasma concentration (C_{max}), area under the plasma concentration-time curve from time 0 to last quantifiable plasma concentration (AUC_{0-t}) and to infinity (AUC_{0-∞}), time to C_{max} (T_{max}), and half-life (t_{1/2}), were determined. PK parameters were reported using descriptive statistics. Geometric means ratios of ln-transformed AUC_{0-t}, AUC_{0-∞}, and C_{max} were evaluated using ANOVA.

Results: Sixteen subjects (median age, 62 y; female, 62.5%) were randomized to treatment (PK analysis population). T_{max} showed more rapid absorption of *trans*-capsaicin from IA CNTX-4975 vs the topical patch (Table). AUC_{0-t} and C_{max} indicated greater *trans*-capsaicin exposure