are investigating if LPA is involved in arthritis-induced pain in the collagen antibody-induced arthritis (CAIA) mice model.

Methods: Arthritis was induced in male CBA mice by injection of 1.5 mg collagen type II antibody cocktail. Mechanical and thermal sensitivity and the degree of arthritis were assessed with von Frey filaments, Hargreaves box (heat), acetone test (cold) and visual scoring, respectively. LPA antibody and control IgG (10 mg/kg), or saline was injected s.c. twice a week from day 12 through day 47. qPCR and immunohistochemical studies were undertaken in dorsal root ganglia (DRGs) to explore the expression of pain-related ion channels.

Results: Administration of LPA antibody treatment reversed CAIA-induced mechanical and thermal hypersensitivity ($p < 0.05$) while had no effect on the early clinical signs of arthritis ($p > 0.05$). mRNA levels for the LPA synthesizing enzyme *autotaxin* were elevated in the CAIA group. On day 48, expression of the voltage-gated calcium channel Cavα2δ1 and the ATP-gated P2X3 receptor were significantly increased in the CAIA DRGs, which were completely prevented by LPA antibody treatment. Of note, based on in vitro experiment, LPA stimulation upregulated Cavα2δ1 and P2X3 expression in primary adult mouse DRG cultures.

Conclusions: Blocking the action of systemic LPA reverses arthritis-induced hypersensitivity, potentially through regulation of Cavα2δ1 and P2X3 expression in peripheral neurons. Thus, our data point to that LPA may serve as a target for providing pain relief in arthritis.

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Pain intensity and duration in a cohort of Norwegian construction workers

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Aims: To compare musculoskeletal pain intensity and duration of construction workers as a function of type of work.

Methods: 239 male construction workers in active employment filled out a (baseline) questionnaire for a prospective study of jobs with assumed heavy work load. Reports of pain presented here was collected from the men in four work categories; project leaders/foremen ($N = 62$, age 45 y, SD ± 13), carpenters ($N = 60$, 41 y ± 13), concrete workers ($N = 35$, 42 y ± 12) and miscellaneous other manual workers (e.g. brick layers, henchmen, $N = 28$, 45 y ± 13). The participants were asked to report pain intensity in different body regions during the last four weeks (0: none, 1: mild, 2: moderate and 3: severe) and the duration of this pain (1: 1–5, 2: 6–10, 3: 11–14 and 4: 15–28 days). A severity index was constructed by multiplying the two recordings, intensity and duration (range 0–12). Two dichotomized variables were defined; for the intensity with a cut point ≥2 (in %) and for the index with a cut point ≥6 (in %). Five % trimmed mean is used due to skewed data.

Results: Low back pain was the most frequently reported pain symptom for all categories of workers (mean *for all: mean intensity: 0.74, intensity ≥2: 23%, mean severity index: 1.64, index ≥6: 13%*), expect carpenters that reported knee pain most frequent (*mean intensity: 0.78, intensity ≥2: 26%, mean severity index: 2.08, index ≥6: 22%*). The miscellaneous worker group reported the highest level of neck pain (*mean intensity: 0.84, intensity ≥2: 25%, mean severity index: 2.03, index ≥6: 20%).* Due to different time distribution of pain symptoms between individuals the use of pain duration gave additional information.

Conclusions: Most construction workers reported low levels of pain. The measurement of both intensity and duration allows computation of a proxy for pain severity.

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The effectiveness of a nursing staff development Intervention to improve pain management – A randomized controlled trial

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Aims: To test the effectiveness of the Pain Resource Nurse (PRN) education program in a university hospital.

Methods: This was a randomized controlled trial. Two nurses from each of the 23 participating surgical and medical units were selected to participate in the PRN program. The program consisted of a three day course in pain management with a structured follow up. After a baseline measurement, the units were randomized to either receive the intervention or to serve as a wait-list control. The control group received the intervention following a second data collection 10 months from baseline. Data regarding knowledge and attitudes regarding pain were collected from nurses, but patient data were collected with the American Pain Society Patient Outcome Questionnaire and from medical records. Patients had to be ≥18 years, hospitalized for ≥24 h, alert and able to participate.

Results: Participating patients were 308 at T1 (73% response rate (RR)) and 329 at T2 (79% RR). Participating nurses were 224 (48% RR) at T1 and 176 (38% RR) at T2. No difference was found between the intervention and control groups regarding knowledge and attitudes of nurses, or in any of the patient outcome variables. The only significant effect of the intervention was improvement in documented standardized pain assessment, which increased from 12% at T1 to 24% at T2 on the intervention units, compared to a decrease from 12% at T1 to 9% at T2 on the control units, $p < 0.05$.

Conclusions: Patient outcomes remained unchanged after the intervention, as were nurses' knowledge and attitudes. The intervention was, however, successful in changing pain assessment practices. Multifarious efforts to change nursing practice resulted in modest changes. Further studies are needed to advance pain management practices in clinical settings.

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