Abstract FRI0522 – Figure 1. Flowchart of the study

Conclusions: These findings suggest that vitamin D supplementation and maintaining sufficient vitamin D levels over 24 months may have beneficial effects on depression in patients with knee OA.

REFERENCES:

- [1] Stubbs B, Aluko Y, Myint PK, et al. Prevalence of depressive symptoms and anxiety in osteoarthritis: a systematic review and meta-analysis. *Age Ageing* 2016;45(2):228–35. doi:10.1093/ageing/afw001
- [2] Anglin RE, Samaan Z, Walter SD, et al. Vitamin D deficiency and depression in adults: systematic review and meta-analysis. *Br J Psychiatry* 2013;202:100–7. doi:10.1192/bjp.bp.111.106666

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FRI0523

ZOLEDRONIC ACID PLUS PREDNISOLONE VERSUS ZOLEDRONIC ACID ALONE OR PLACEBO IN THE TREATMENT OF KNEE OSTEOARTHRITIS: A RANDOMISED TRIAL

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Background: Disease-modifying therapeutic options are needed for patients with osteoarthritis (OA). Zoledronic acid (ZA) is a potential option as it reduced both knee pain and knee bone marrow lesion (BML) size over 6 months in patients with knee OA. However, ZA infusions are often accompanied by a suite of side effects within 3 days of infusion (acute phase reactions (APRs)), which include flu-like symptoms. These may be caused by upregulation of pro-inflammatory cytokines. A preliminary study (n=20) suggested that a combination of ZA and prednisolone (VOLT01) was superior to ZA alone in reducing APR and knee pain in knee OA patients. A larger study was needed to confirm these findings and examine the new combination's effect on OA outcomes.

Objectives: To compare the effect of once-off infusion of ZA, VOLT01 and placebo on APRs, knee BML size and knee pain symptoms over 6 months in knee OA patients with significant knee pain and BMLs.

Methods: Knee OA patients ≥ 50 years with significant knee pain (defined as a 100 mm Visual Analogue Scale (VAS) ≥ 40 mm) and knee BMLs visualised on proton density weighted MRI were randomised to receive one infusion of ZA (5 mg in 100 ml saline), VOLT01 (5 mg ZA in 100 ml saline plus a 10 mg prednisolone bolus) or placebo (100 ml saline). Co-primary hypotheses were that VOLT01 would significantly reduce APRs compared to ZA, and that VOLT01 would be non-inferior to ZA in reducing BML size over 6 months. Secondary hypothesis was that VOLT01 would be non-inferior to ZA in improving knee pain and dysfunction (assessed using the Western Ontario and McMasters

Universities Osteoarthritis Index (WOMAC) and VAS) over 6 months. Mixed effect models were performed for data analyses. Analyses for change in knee pain and function scores were adjusted for baseline imbalanced values (baseline pain and utility scores, and pain medications). Non-inferiority margins were defined as 140 mm² for change in knee BML size and 8 mm for change in knee pain and function scores (WOMAC pain and function scores were averaged to a 100 mm VAS).

Results: 117 knee OA patients (63 females, mean $\pm$ standard deviation (SD) age 62.2 $\pm$ 8.1 years) were enrolled. At baseline, mean $\pm$ SD knee pain VAS score was 50.1 $\pm$ 18.9 mm and median BML size 370 mm². APRs were more frequent in the two active treatment groups (ZA: 87%; VOLT01: 90%) than the placebo group (55%) (both $p < 0.01$). Compared to placebo, neither ZA nor VOLT01 significantly reduced BML size (ZA mean difference [95% CI] -21.6 [-103.0 to +59.9], VOLT01 -62.0 [-142.5 to +18.4]) or knee pain scores (WOMAC pain: ZA 2.6 [-8.5 to +13.8], VOLT01 -8.1 [-18.8 to +2.6]; VAS pain: ZA 5.4 [-6.4 to +17.1], VOLT01 -7.7 [-19.0 to +3.6]) over 6 months, but WOMAC knee function improved significantly (-9.9 [-18.2 to -1.6], $p = 0.02$) in VOLT01-treated group. VOLT01 was non-inferior to ZA in reducing knee BML size and superior to ZA in reducing knee pain and function scores (figure 1).

Abstract FRI0523 – Figure 1. Non-inferiority tests between VOLT01 and zoledronic acid for change in BML size, knee pain and function scores. Values represent the mean difference between VOLT01 and zoledronic acid. An upper bound of 95% CI for BML size less than 140 mm² or knee symptoms less than 8 indicates that a non-inferiority of VOLT01 to zoledronic acid is demonstrated.

Conclusions: Combining prednisolone with ZA does not appear useful for reducing APRs, though there may be a small benefit over ZA alone for knee symptoms. Neither showed evidence of disease modification by changing BML size.

Disclosure of Interest: None declared

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FRI0524

CENTRAL SENSITISATION IN HAND OSTEOARTHRITIS AND ASSOCIATIONS WITH RADIOGRAPHIC SEVERITY, SYNOVITIS ON ULTRASOUND AND SYMPTOM DURATION

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Background: Patients with painful hand osteoarthritis (HOA) have enhanced central pain sensitisation (CS). Structural and inflammatory joint tissue damage over time might lead to CS. However, increased pain sensitisation can also represent an 'a priori trait' of a subgroup of patients.

Objectives: This study explored whether structural pathology, inflammation and symptom duration of HOA are associated with enhanced CS.

Methods: Through a cross-sectional study we included 300 subjects (89% women, median age 61 years (IQR 57, 67), mean body mass index (BMI) 26.5 (SD 4.9) kg/m²) with clinical and/or ultrasound verified HOA. All were examined with ultrasound (grey scale (GS) synovitis and power Doppler activity (PD)) and conventional radiographs of both hands. GS-synovitis was scored on a semi-quantitative 0–3 scale and PD to be present or not. The bilateral interphalangeal, metacarpophalangeal, first carpometacarpal and scaphotrapezoid/trapezoidal joints were scored for global HOA (using Kellgren and Lawrence scale (KL, 0–4)). Erosive HOA in the interphalangeal joints was defined with the Verbruggen-Veys anatomical phase score (VV). In addition, participants answered a question about the year of onset of their hand symptoms.

CS was measured with temporal summation (TS), the increase in perceived pain to repetitive noxious stimuli, using a mechanical probe. First, probes with increasing weight (32, 64, 128, 256 or 512mN) were applied at the wrist until the patients reported pain of at least 4/10. The selected probe was applied to the wrist times at