

follow-up. Moreover, the effect of the corticosteroid injection prolonged the entire 12 week follow-up period.

Disclosure of Interest: None declared

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SAT0493 MAINTAINING SUFFICIENT SERUM VITAMIN D LEVELS OVER TWO YEARS IS ASSOCIATED WITH IMPROVED KNEE STRUCTURAL AND SYMPTOMATIC OUTCOMES IN PEOPLE WITH KNEE OSTEOARTHRITIS: A POST HOC ANALYSIS OF THE VIDEO TRIAL

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Objectives: To describe whether maintaining sufficient serum vitamin D levels in people with knee osteoarthritis (OA) and baseline vitamin D insufficiency has an association with change in knee structures and symptoms over two years.

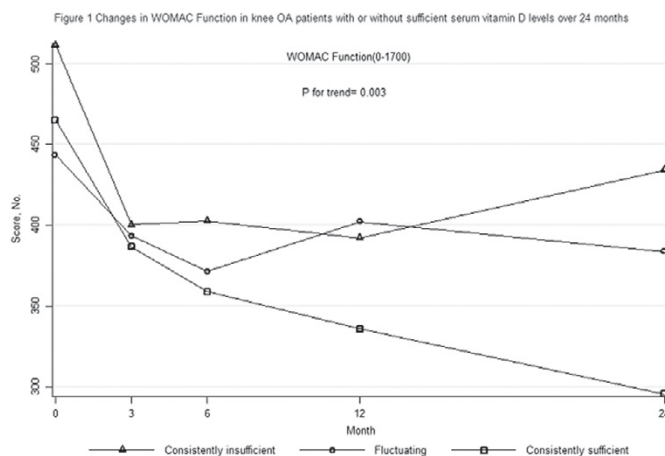
Methods: Participants (n=413, age 63.2; 50% females) with symptomatic knee OA and vitamin D insufficiency were enrolled in a clinical trial. 340 participants (82.3%) completed the study with 25-hydroxyvitamin D [25(OH)D] measurements at month 0, 3 and 24. Participants were classified as consistently insufficient (serum 25(OH)D \leq 50nmol/l at month 3 and 24, n=45), fluctuating (25(OH)D >50nmol/l at either point, n=68) and consistently sufficient (25(OH)D >50nmol/l at month 3 and 24, n=226) vitamin D groups. Knee cartilage volume, cartilage defects, bone marrow lesions (BMLs) and effusion-synovitis volume were assessed using MRI at baseline and month 24. Knee symptoms were assessed at baseline, month 3, 6 12 and 24 using Western Ontario and McMaster Universities Arthritis Index (WOMAC).

Results: The consistently sufficient group had significantly less loss of tibial cartilage volume (β : 2.1%, 95 CI%: 0.3%, 3.9%), less increase in effusion-synovitis volume (β : -2.5ml, 95 CI%: -4.7, -0.2) and less loss of WOMAC physical function (β : -94.2, 95% CI: -183.8, -4.5) compared to the consistently insufficient group in multivariable analyses. In contrast, there were no significant differences in these outcomes between the fluctuating and consistently insufficient groups. Changes in tibiofemoral cartilage defects, BMLs and knee pain were similar between groups.

Table 1. Associations between maintaining sufficient 25-(OH)D levels and changes in cartilage volume and effusion -volume over 24 months in patients with knee osteoarthritis

	Multivariable analysis	
	β (95% CI)	P Value
Total tibial Cartilage Volume Change (%/y)		
Consistently insufficient	Reference	
Fluctuating	1.5 (-0.5, 3.5)	0.15
Consistently sufficient	2.1 (0.3, 3.9)	0.03
P for trend		0.02
Effusion-Synovitis Absolute Volume Change (ml)		
Consistently insufficient	Reference	
Fluctuating	0.7 (-2.5, 3.9)	0.66
Consistently sufficient	-2.5 (-4.7, -0.2)	0.03
P for trend		<0.01

Adjusted age, sex and BMI and change in season of blood sampling.



Conclusions: This post hoc analysis suggests beneficial effects of maintaining vitamin D sufficiency on cartilage loss, effusion-synovitis and physical function in people with symptomatic knee OA.

References:

- [1] Cao, Y., et al., Vitamin D supplementation in the management of knee osteoarthritis: study protocol for a randomized controlled trial. *Trials* 2012;13:131.
- [2] Jin, X., et al., Effect of Vitamin D Supplementation on Tibial Cartilage Volume

and Knee Pain Among Patients With Symptomatic Knee Osteoarthritis: A Randomized Clinical Trial. *JAMA* 2016; 315(10):1005–13.

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SAT0494 EARLY TOLL-LIKE RECEPTOR 4 BLOCKADE IMPEDES THE BEHAVIOURAL AND HISTOLOGICAL CHARACTERISTICS OBSERVED IN A MIA-INDUCED ANIMAL MODEL OF OSTEOARTHRITIC PAIN

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Background: Contribution of Toll-Like Receptor 4 (TLR4) to pain sensitisation has been demonstrated to occur under chronic pain conditions. We previously described an antinociceptive effect of TLR4-A1, a TLR4 inhibitor, in two chronic pain conditions, peripheral neuropathic pain and osteoarthritis (OA).

Objectives: The aim of this study was to evaluate TLR4-A1 effect on allodynia and hyperalgesia in OA model, and to evaluate whether this effect is correlated with changes in spinal glial activation.

Methods: Wistar rats weighing 200–250g were used. OA was induced by a single intraarticular injection of 2mg of monosodium iodoacetate (MIA) into the right knee joint of anaesthetised rats. TLR4-A1, 10 mgkg⁻¹, was intraperitoneally administered during the first five days post-MIA injection. TLR4-A1 was synthesised by Dr Quesada. Vehicle-treatment (ethanol:saline, 1:9) was used as control. Each group was composed of 6 animals. After three weeks (day 22 post-MIA injection), animals were sacrificed for tissue collection. L3-L5 spinal segments were collected and embedded in paraffin wax. Eventually, samples were immune-stained with anti-GFAP or Iba-1 antibodies. Photomicrographs were recorded to make montages of the entire spinal cord at a final magnification of 20x (n=3 per lumbar section). Total number of GFAP or Iba-1 positive cells were counted separately in laminae I-II, III-IV and V-VI.

Results: Intraarticular injection of MIA increased microglial expression (Iba-1 labelling) in the ipsilateral spinal cord compared to the contralateral side, being the difference statistically significant for the superficial (I-II, +72.25%; P<0.01) and deeper (V-VI, +95.31%; P<0.001) laminae of L3 and for the superficial laminae of L4 (+87.5%; P<0.01). In animals treated with TLR4-A1, Iba-1 labelling in the ipsilateral dorsal horn showed a similar pattern to the contralateral dorsal horn. Pre-treatment with TLR4 blocker prevented microglia activation after MIA-injection in L3 and L4 segments.

Intraarticular injection of MIA also increased the number of GFAP-positive activated astrocytes in the ipsilateral spinal cord compared to the contralateral side; in this case, statistically significant differences were found for the superficial (I-II; +41.62%; p<0.01) and middle (III-IV; +64.35%, p<0.001) laminae of L3 sections. GFAP in TLR4-A1-treated rats showed a similar pattern for the ipsi- and the contra-lateral sides. That is, TLR4-A1 prevented L3 increased activated astroglia following MIA-injection.

Conclusions: Early toll-like receptor 4 blockade hampers spinal glial activation, which correlates with diminished allodynia and hyperalgesia observed in TLR4-A1-treated animals in a model of MIA-induced OA. Although further studies are needed, TLR4 blockade could be a good option in the treatment of osteoarthritis.

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SAT0495 KNEE FUNCTION AND ENTHESITIS IN LONG STANDING OSTEOARTHRITIS, WHAT ULTRASOUND COULD TELL US?

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Background: The enthesis around the knee including the quadriceps tendon and infrapatellar ligament insertions could be responsible for a significant cause of knee pain functional deterioration in long standing knee osteoarthritis.

Objectives: Ultrasound evaluation of the enthesis at the quadriceps tendon patellar insertion, infrapatellar ligament patellar and tibial insertions in patients with long standing knee osteoarthritis (KOA) and low knee function.

Methods: 410 Patients with KOA attending the outpatient rheumatology clinic of AL-Azhar university hospitals who had met the inclusion criteria:

- Primary Knee osteoarthritis.
 - Kellegren – Lawrance scale grade III.
 - At least 5 years disease duration.
- Exclusion criteria:
- Patients with chronic diseases affects the patient function.