

## Medical or Research Professionals / Clinicians

Topic area: *Clinical topics by disease*

Topic: *21. Spondyloarthritis - clinical aspects (other than treatment)*

EULAR12-4301

### **DKK1 SERUM LEVEL IS INCREASED IN RECENT SPONDYLOARTHRITIS AND IS ASSOCIATED WITH HIGHER PREVALENCE OF SYNDESMOPHYTES. DATA FROM THE DESIR COHORT.**

G. Nocturne<sup>1,\*</sup>, S. Pavy<sup>2</sup>, P. Goupille<sup>3</sup>, M. Dougados<sup>1</sup>, C. Roux<sup>1</sup>, X. Mariette<sup>2</sup>, C. Miceli-Richard<sup>2</sup>

<sup>1</sup>Rheumatology, Université Paris Descartes, Paris, <sup>2</sup>Rheumatology, Université Paris Sud, Le Kremlin Bicêtre, <sup>3</sup>Rheumatology, Université François Rabelais, Tours, France

**My abstract has been or will be presented at a scientific meeting during a 12 months period prior to EULAR 2012:**

No

**Is the First Author of this abstract an Undergraduate or a Student?:** Yes

**Is the first author applying for a Travel Bursary?:** No

**Background:** Dickkopf-1 (DKK-1) is an inhibitory protein of the Wnt signalling pathway that could rationally be involved either in AS osteoporosis or in the osteoblastogenesis associated with syndesmophyte construction.

**Objectives:** To investigate DKK-1 serum levels among patients with recent inflammatory back pain (IBP) fulfilling ASAS criteria for spondyloarthritis (SpA) and to investigate the parameters associated or correlated with DKK-1 increase.

**Methods:** The DESIR cohort is a prospective, multicenter French cohort of patients with early IBP (Calin or Berlin criteria) (>3 months and <3 years of duration) suggestive of SpA, including 708 patients. DKK-1 serum levels were assessed at baseline on the whole cohort by sandwich ELISA (Biomedica, Vienna). DKK-1 serum levels were analyzed in the subgroup of patients fulfilling ASAS criteria for SpA (N=479; 68.9%) and compared with serum levels from 71 controls (without autoimmune or chronic inflammatory disease). 461 SpA patients (94.8%) were treated with NSAIDs, 62 with corticosteroids (<10 mg per day) and 67 with DMARDs (35 SSZ and 32 MTX) at inclusion in the study. All SpA patients were naive of any TNF blocker at inclusion in the study. Univariate and multivariate analyses were performed in order to identify the main predictors of serum DKK-1 level in patients with SpA.

**Results:** Serum DKK-1 levels were available for 695 patients with IBP (472 of them fulfilling ASAS criteria for axial SpA) and were significantly increased in SpA patients (mean  $\pm$  SEM 30.7  $\pm$  0.7 pmol/L) compared with controls (10.8  $\pm$  1.1 pmol/L) ( $p$ <0.0001). DKK-1 serum levels were significantly correlated with ESR ( $P$ =0.04;  $r$ =0.10), CRP ( $P$ =0.015;  $r$ =0.11), ASDAS-ESR ( $P$ =0.03;  $r$ =0.10), ASDAS-CRP ( $P$ =0.016;  $r$ =0.11). A significant positive correlation between DKK-1 serum levels and lumbar spine BMD was observed ( $P$ =0.04;  $r$ =0.13). DKK-1 serum levels were significantly higher among SpA patients with syndesmophytes (mSASSS>0; N=131) (mean  $\pm$  SEM 35.4  $\pm$  1.6 pmol/L) compared with patients with normal X-Rays (N=334) (mean  $\pm$  SEM 28.6  $\pm$  1.1 pmol/L) ( $P$ <0.0001) and among SpA patients with inflammatory lesions on sacroiliac joints MRI (N=186) (mean  $\pm$  SEM 31.9  $\pm$  1.0 pmol/L) compared with SpA patients with normal MRI (N=278) (mean  $\pm$  SEM 28.6  $\pm$  1.0 pmol/L) ( $p$ =0.028), and among HLA-B27 negative patients (N=79) (mean  $\pm$  SEM 34  $\pm$  2.2 pmol/L) compared with HLA-B27 positive SpA patients (N=392) (mean  $\pm$  SEM 30  $\pm$  0.7 pmol/L). None of the other studied parameters were significantly associated or correlated with DKK-1 serum levels (age, gender, weight, BASDAI, NSAIDs, corticosteroids or DMARDs intake, sacroiliitis on X-Rays, inflammatory lesions on axial MRI). Multivariate analysis led to a significant association of DKK-1 serum levels with the presence of syndesmophytes at baseline ( $p$ =0.0006).

**Conclusions:** This study conducted in a large cohort of patients presenting with early axial SpA clearly showed an increase in DKK-1 serum levels, such increase being even more important in the subgroup of patients with syndesmophytes. Such latter results might be the consequence of DKK-1 dysfunction (1,2), e.g through an impaired fixation of DKK-1 on its receptor LRP5/6.

**References:** 1. Diarra D, et al. Nat Med. 2007 Feb;13(2):156-63. 2. Daoussis D, et al. Arthritis Rheum. 2010 Jan;62(1):150-8.

**Disclosure of Interest:** None Declared