

THE URINARY LEVELS OF TYPE II COLLAGEN PEPTIDE COLL 2-1 AND ITS NITRATED FORM (COLL 2-1 NO₂) ARE CORRELATED WITH THE CLINICAL SEVERITY OF KNEE OSTEOARTHRITIS.

Deberg M¹, Christgau S², Henriksen DB², Seidel L³, Reginster JY¹, Henrotin Y¹

¹ Bone and Cartilage Metabolism Research Unit, CHU Sart-Tilman, Liège, Belgium, ² Nordic Bioscience, Copenhagen, Denmark, ³ Biostatistics Department, CHU Sart-Tilman, Liège, Belgium

Objective

To study the relationship between Coll 2-1 and Coll 2-1 NO₂ concentrations, two potential markers of the inflammatory related cartilage degradation, and symptoms of patients with knee osteoarthritis (OA).

Materials and Methods

16 male and 48 female patients, aged over 50 years, and with moderate knee OA diagnosed according the American College of Rheumatology criteria were included. Symptoms of OA were assessed by the WOMAC index, a validated, disease-specific questionnaire addressing severity of joint pain (5 questions), stiffness (2 questions) and limitation of physical function (17 questions). At baseline and every year during 3 years, Coll 2-1 and Coll 2-1 NO₂ concentrations were measured by two specific competitive immunoassays in urine. Coll 2-1 is a 9 amino acids peptide identified in the triple helical part of type II collagen (HRGYPGLDG) and Coll 2-1 NO₂ is the nitrated form [HRGY(NO₂)PGLDG] of this peptide. The limit of detection of these immunoassays were 17 nM and 0.025 nM, respectively. The inter and intra-assay coefficient of variations were below 15%. We used the Spearman correlation test to assess association between clinical assessments and Coll 2-1 and Coll 2-1 NO₂ levels.

Results

At baseline, significant correlations were found between the urinary Coll 2-1 and Coll 2-1 NO₂ concentrations and the global WOMAC score and its pain and function subscales. There were no relationship between (1) Coll 2-1 and Coll 2-1 NO₂ levels at baseline and 3-years change of total WOMAC index and (2) 1-year change of Coll 2-1 and Coll 2-1 NO₂ levels and 3-years change of total WOMAC index. The ratio Coll 2-1 NO₂/Coll 2-1 was not correlated with clinical parameters.

CLINICAL PARAMETERS	<u>BIOCHEMICAL MARKERS</u>			
	Coll 2-1		Coll 2-1 NO ₂	
	Spearman correlation (r)	P value	Spearman correlation (r)	P value
WOMAC INDEX				
Total	0.28	0.01	0.27	0.02
Pain	0.27	0.01	0.30	0.009
Function	0.29	0.01	0.27	0.02
Stiffness	0.09	0.44	0.11	0.33

Conclusions :

Urinary levels of Coll 2-1 and Coll 2-1 NO₂ at baseline are related to the clinical severity of the disease, suggesting that these markers could be indicators of the disease activity.