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POS0190

ASSOCIATION BETWEEN OSTEOARTHRITIS-RELATED SERUM BIOCHEMICAL MARKERS OVER 11 YEARS AND KNEE SYMPTOMS IN MIDDLE-AGED ADULTS

A. Singh¹, L. Blizzard², A. Venn¹, G. Jones¹, J. Burgess^{1,3}, V. Parameswaran^{1,3}, C. Ding^{1,4,5}, B. Antony¹. ¹Menzies Institute for Medical Research, Musculoskeletal Health and Disease, Hobart, Australia; ²Menzies Institute for Medical Research, Statistics, Hobart, Australia; ³Royal Hobart Hospital, Department of Endocrinology, Hobart, Australia; ⁴Monash University, Department of Epidemiology and Preventive Medicine, Clayton, Australia; ⁵Southern Medical University, Clinical Research Centre, Zhujiang Hospital, Guangzhou Shi, China

Background: Serum levels of cartilage and joint-specific biochemical markers such as cartilage oligomeric matrix protein (COMP), matrix metalloproteinase (MMP)-3, and hyaluronan (HA) are associated with cartilage degradation, joint tissue degradation, and synovitis in patients with OA. Change in these biomarkers may precede the morphological and clinical manifestations of OA and therefore have been explored as predictive markers in OA. However, few studies have evaluated the association of OA-related biomarkers with knee symptoms in general population-based middle-aged adults

Objectives: To describe the associations between OA-related biomarkers and knee symptoms in middle-aged adults followed up over 10-13 years

Methods: Blood samples were collected during the Childhood Determinants of Adult Health (CDAH)-1 study at baseline (year: 2004-06, age: 26-36 years) and 10-13 year follow-up (CDAH-3; year: 2014-2019, age: 36-49 years). Serum samples from baseline (n=156) and follow-up (n= 167) were analyzed for three OA-related biomarkers – namely COMP, MMP-3, and HA– using ELISA. Knee symptoms (pain, stiffness, and dysfunction) were assessed using the WOMAC scale during the CDAH-3 phase. Univariable and multivariable (adjusted for age,

Table 1. Cross-sectional and longitudinal association between WOMAC symptoms and OA-related biomarkers

Variables	Longitudinal Biomarker at CDAH-1, knee symptom at CDAH-3	Cross-sectional Biomarker at CDAH-3, knee symptom at CDAH-3
	Adjusted ^a Coef. (95%CI) p-value	Adjusted ^a Coef. (95%CI) p-value
COMP (Predictor)		
WOMAC-total	1.047 (1.035, 1.060) p<0.01	1.088 (1.017, 1.159) p<0.01
Pain	1.026 (1.002, 1.050) p=0.03	1.156 (0.989, 1.324) p=0.04
Stiffness	1.019 (0.988, 1.051) p=0.23	0.877 (0.708, 1.057) p=0.12
Dysfunction	1.045 (1.030, 1.061) p<0.01	1.040 (0.949, 1.130) p=0.38
MMP3 (Predictor)		
WOMAC-total	1.026 (1.020, 1.031) p<0.01	1.017 (1.010, 1.023) p<0.01
Pain	1.020 (1.009, 1.030) p<0.01	1.013 (1.001, 1.025) p=0.03
Stiffness	1.020 (1.004, 1.035) p=0.01	1.004 (.987, 1.021) p=0.66
Dysfunction	1.029 (1.022, 1.037) p<0.01	1.019 (1.010, 1.026) p<0.01
HA (Predictor)		
WOMAC-total	0.995 (0.991, 0.999) p<0.01	1.007 (1.003, 1.010) p<0.01
Pain	0.999 (0.991, 1.006) p=0.75	1.008 (1.002, 1.015) p=0.01
Stiffness	0.989 (0.980, 0.998) p=0.03	0.997 (0.989, 1.007) p=0.65
Dysfunction	1.003 (0.998, 1.009) p= 0.22	1.015 (1.010, 1.020) p<0.01

Bold denotes statistically significant^aModel adjusted for age, sex, and BMI

sex, and body mass index (BMI)) zero-inflated Poisson regression models with random effects were used to describe the above associations

Results: The prevalence of knee pain was 46%. In the multivariable model, adjusted for age, sex, and BMI, there was a significant positive association between COMP ($\beta=1.156$, 95%CI: 0.989, 1.324; $p=0.04$), MMP-3 ($\beta=1.013$, 95%CI: 1.001, 1.025; $p=0.02$), and HA ($\beta=1.008$, 95%CI: 1.002, 1.015, $p=0.01$) with knee pain and WOMAC-total score (Table 1) in middle-aged adults. The increase in knee pain per ng/ml increase in COMP, MMP-3, and HA was 15.7%, 1.3%, and 0.8%, respectively. The overall mean biomarker levels decreased over 10-13 years; however, the mean WOMAC-total scores were higher in participants whose COMP and HA levels increased (COMP: 24 (27.31), HA: 14.20 (22.60)) compared to those in whom it decreased or remained stable (COMP: 9.84 (16.83), and HA: 8.28 (13.22)) during this period. There was a significant positive association between COMP ($\beta=1.026$, 95%CI: 1.002, 1.050, $p=0.03$) and MMP-3 ($\beta=1.020$, 95%CI: 1.009, 1.030, $p<0.01$) measured at baseline and knee pain assessed after 10-13 year in the middle-aged adults (Table 1)

Conclusion: OA-related biochemical markers such as COMP and MMP-3 were positively associated with knee pain in population-based middle-aged adults. These results suggest biochemical markers measured in middle-aged adults may be used as a marker of joint pain

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POS0191

THE VALUE OF MIR-20B, MIR-22, MIR-26A, MIR-125B AND MIR-221 IN RHEUMATOID ARTHRITIS

M. Ciesla¹, B. Kolarz¹, M. Majdan², M. Dryglewska². ¹University of Rzeszow, College of Medical Sciences, Rzeszow, Poland; ²Medical University of Lublin, Department of Rheumatology and Connective Tissue Diseases, Lublin, Poland

Background: Micro-RNAs (miRNAs) are an endogenous small, single-stranded, non-coding RNAs with a 18-25 nucleotide long and have been reported as a potential extracellular biomarkers of various diseases. They mainly decrease the gene expression by inhibiting the translation or cause mRNA destabilization.

Objectives: The aim of the study was to identify miRNAs whose plasma expression level is associated with RA prevalence and/or activity.

Methods: A total of 74 unrelated individuals, 50 with RA and 24 in a control group were enrolled to the study. Real-time PCR was used to evaluate the plasma expression levels of 5 miRNAs: miR-20b, miR-22, miR-26a, miR-125b, miR-221.

Results: We found the differences in four out of five evaluated miRNAs between RA and HC group – miR-26a, $p<0.0001$; miR-125b, $p<0.0001$; miR-20b $p<0.0001$; miR-22, $p=0.005$. Graphical presentation of the results is shown in Figure 1. The logistic regression results showed that miR-22 ($p=0.0003$) and miR-26a ($p=0.049$) are the most important molecules distinguishing RA patients and healthy controls in the study. MiR-22 was positively correlated with ESR ($r_s=0.41$), CRP ($r_s=0.49$) and DAS28 ($r_s=0.33$) and miR-26a was positively correlated with ESR ($r_s=0.49$), CRP ($r_s=0.41$), number of swelling joints ($r_s=0.43$), number of painful joints ($r_s=0.74$) and DAS28 ($r_s=0.63$). Moreover, miR-22 expression was different between rheumatoid factor (RF) positive and RF negative patients ($p=0.04$).

Conclusion: The results showed that miR-22 ($p=0.0003$) and miR-26a ($p=0.049$) may be the most useful in evaluated panel of miRNAs distinguishing RA