Poster Round
海報目錄

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主持人：曾瑞成醫師

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海報摘要 TCR01

Association of plasma Homocysteinemia levels and pulsatility index in sarcopenia

肌少症患者血液同型半胱氨酸血濃度與搏動指數的關聯性

陳英州 鄭添財 賴漢明 尤珊富 許鐘元 柯祈化 陳嘉夆 邱文燦 王鈺維

Ying-Chou Chen , Tien-Tsai Cheng, Han-Ming Lai, Shan-Fu Yu, Wen-Chan Chiu, Chung-Yuan Hsu, Jia-Feng Chen, YW, Wang

高雄長庚風濕免疫科

Background

Sarcopenia is caused by low muscle mass and lead to functional disability. Sarcopenia patients had elevated prevalence of CVDs, especially stroke. Hyperhomocysteinemia is an established risk factor for major vascular events, including stroke. Elevated plasma tHcyt level is associated with the small vessel disease (SVD) type of ischemic stroke. The pulsatility index (PI), measured by transcranial Doppler (TCD), represents peripheral resistance downstream from tested arteries. Several studies have demonstrated that the PI is an independent predictor of SVD. We, therefore, investigated the relationship of plasma tHcyt on the PI of the middle cerebral artery (MCA), anterior cerebral aartery(ACA), vertebral artery(VA), basilar artery(BA) in patients with sarcopenia. .

Material and Methods

A total of 150 sarcopenia patients were recruited at rehabilitation, neurology, rheumatology department. All patients accept transcranial Doppler study and laboratory assessments include fasting sugar, lipid and homocysteine level. Anthropometric measurements including height, weight, and waist circumference were taken using standard operating procedures.

Results:

A total of 150 patients were collected. The mean age were 75.98±2.35 years . The BMI were 24.91±1.47 kg/m^2 . The mean homocysteine were 12.55±0.82 μmole/L, the mean PI of R-MCA1 was 1.181±0.089, the mean PI of R-ACA was 1.237±0.219, the mean PI of R-PCA1 was 1.246±0.231, the mean PI of R-PCA2 was 1.140±0.259, the mean PI of R-EC-ICA was 1.160±0.158, the mean PI of R-Siphon was 1.445±0.214, the mean PI of R-VA was 1.006±0.130, the mean PI of R-BA was 1.012±0.086, the mean PI of L-MCA1 was 1.272±0.244, the mean PI of L-ACA was 1.289±0.220, the mean PI of L-PCA1 was 1.146±0.208, the mean PI of L-PCA2 was 1.152±0.129, the mean PI of L-EC-ICA was 1.173±0.182. .

When we tried to find the correlation between the homocysteine level and PI, we found homocysteine level had negative correlation with right MCA, ACA, PCA1, PCA2, siphon VA, BA , left MCA, ACA, PCA1, PCA2, siphon($p<0.05$). Using MCA PI as prediction, homocysteine and gender can be used as prediction factors for PI.

Conclusion: We found a positive correlation between plasma tHcyt levels and PI, and suggests that plasma tHcyt induces a circulatory disturbance in the perforating arteries or microvessels originating from major cerebral arteries in sarcopenia.

Keywords: Sarcopenia, homocysteinemia, transcranial Doppler, pulsatility index

海報摘要 TCR02

MRI proved Acute Osteoporotic vertebral fracture Have Lower Cancer Incidence Density after Anti-Osteoporotic Therapy

核磁共振證實的急性骨鬆脊椎骨折經抗骨鬆藥物治療後有較低癌症發生密度

陳英州 鄭添財 賴漢明 尤珊富 許鐘元 柯祈化 陳嘉夆 邱文燦 王鈺維

Ying-Chou Chen , Tien-Tsai Cheng, Han-Ming Lai, Shan-Fu Yu, Wen-Chan Chiu, Chung-Yuan Hsu, Jia-Feng Chen, YW, Wang

高雄長庚風濕免疫科

Background:

Some investigations have reported the long-term effect of anti-osteoporotic therapy on the risk of different neoplasms in the general population, and some have revealed a lower risk of breast cancer in bisphosphonate users. However, there is currently insufficient data to make a definitive conclusion.

Objective: The purpose of the study was to investigate whether anti-osteoporotic therapy affects the cancer incidence density in patients after osteoporotic vertebral fractures.

Methods: In this retrospective study, we reviewed cases of osteoporosis after acute vertebral fractures from 2001 to 2015. All the vertebral fracture were proved by MRI with bone edema o T1WI. Anti-osteoporotic therapy included alendronate, ibandronate, zoledronic acid, raloxifene, teriparatide, and denosumab. Medication exposure was expressed in quintiles of the proportion of days covered with medication during follow-up period (PDC). We followed these patients until they developed cancer and recorded the associated co-morbidities. The cancer incidence density was calculated as person-years for anti-osteoporotic therapy and for each drug.We used Cox regression analysis to identify the risk of cancers.

Results: Of 1128 patients with acute vertebral fractures, 752 received anti-osteoporotic therapy and 432 did not. The patients who received anti-osteoporotic therapy had mean age of 74.72 ± 8.39 years, compared to 72.90 ±10.45 years in those who did not receive anti-osteoporotic therapy (p=0.001). Fourteen (1.9%) of the anti-osteoporotic group developed cancer, compared to 24 (5.6%) in the no anti-osteoporotic therapy group (p=0.004). After adjusting for potential confounders, the anti-osteoporotic group still had a lower risk of cancer (p=0.013; HR: 0.405, 95% CI: 0.199-0.824).

Conclusions: In this study, the patients who received anti-osteoporotic therapy had a lower risk of cancers, suggesting that the use of these drugs is safe for the treatment of osteoporosis.

Key points:

We have identified anti-osteoporotic therapy was safe and had a lower risk of cancers

Key words:

Anti-osteoporotic therapy, osteoporosis, vertebral fracture, cancer, incidence density

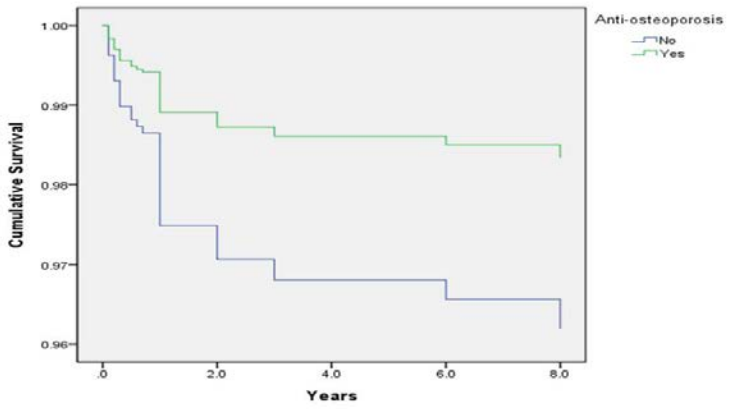

Fig 1. Kaplan Meier analysis showed that the anti-osteoporotic treatment group had a lower rate of developing cancer than the no anti-osteoporotic treatment group

Table . Multiple variable analysis of the risk of cancer

	Regression coefficient	SE	Wald	P value	HR(95%CI)
Anti-osteoporotic therapy (yes/no)	-0.841	0.357	5.551	0.018	0.431(0.214-0.868)
Age	-0.019	0.015	1.626	0.202	0.981(0.953-1.01)
Sex	-0.227	0.202	1.263	0.261	0.797(0.536-1.184)
Smoking	1.037	0.575	3.260	0.071	2.822(0.915-8.7)
Alcohol consumption	-0.288	0.684	0.177	0.674	0.75(0.196-2.864)
Rheumatoid arthritis	-1.009	1.028	0.964	0.326	0.364(0.049-2.734)
Diabetes	-0.459	0.408	1.263	0.261	0.632(0.284-1.407)
Neurological disease	-0.115	0.542	0.045	0.832	0.891(0.308-2.582)
liver disease	1.814	0.333	29.669	0.001	6.138(3.195-11.791)

Key: HR: hazard ratio; SE: standard error; CI: confidence interval

海報摘要 TCR03

Predictors of Changes in Bone Mineral Density in Premenopausal Patients with Rheumatoid Arthritis - A 3-year, Longitudinal, Observational Study

停經前類風濕性關節炎患者骨密度變化的預測因素：三年觀察性研究

Shan-Fu Yu[1,2], Jia-Feng Chen[1], Ying-Chou Chen[1,2,] Chung-Yuan Hsu[1,2], Han-Ming Lai[1], Hsiao-Ru He[1], Tien-Tsai Cheng[1,2]

[1] Division of Rheumatology, Allergy, and Immunology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Taiwan, R.O.C.

[2] Chang Gung University College of Medicine, Kaohsiung, Taiwan, R.O.C.

尤珊富 [1,2]、陳嘉夆 [1]、陳英州 [1,2]、許鐘元 [1,2]、賴漢明 [1]、何曉儒 [1]、鄭添財 [1,2]

[1] 高雄長庚醫院 內科部 過敏免疫風濕科

[2] 長庚大學醫學院

Abstract

Background: To investigate bone mineral density (BMD) changes after three years at different measurement sites in premenopausal women with rheumatoid arthritis (RA) patients and identify the predictors for BMD changes.

Methods: We performed an interim RA-related osteoporosis/fracture registry analysis. BMD was assessed with dual-energy X-ray absorptiometry, and baseline clinical characteristics, lifestyle factors, osteoporosis treatment, and RA therapies were obtained. Percent change of BMD (△BMD%) at the hip and lumbar spine between baseline and three years later was evaluated. Stepwise multiple linear regression analysis was used to identify independent predictors of △BMD.

Results: 98 females were analyzed, with a mean age of 42.8. Three years later, women had significant BMD reduction in the femoral neck (FN) (P=0.005), total hip (TH) (P=0.019), and first through fourth lumbar vertebrae (L1-4) (P=0.004). Stepwise multiple linear regression analysis revealed significant independent predictors of △BMD at the FN, TH, and L1-4 were as follows: baseline BMD at the FN, vegetarian, use of glucocorticoid, baseline DAS28, baseline ESR, and baseline BMI; baseline BMD at the TH, vegetarian, mean DAS28-ESR, baseline BMI; vegetarian, older age, respectively. Vegetarian was a common independent predictor of △BMD% at all three sites.

Conclusion: Premenopausal RA patients had apparent bone loss at all sites after three years. Vegetarian was a common independent predictor of △BMD% at all three sites. These findings emphasize the need to address bone health in managing RA, even in younger women.

海報摘要 TCR04

Influence of diffusing capacity for carbon monoxide on muscle mass in rheumatoid arthritis patients.

一氧化碳擴散能力對類風濕關節炎患者肌肉質量的影響

陳英州 鄭添財 賴漢明 尤珊富 許鐘元 柯祈化 陳嘉夆 邱文燦 王鈺維

Ying-Chou Chen , Tien-Tsai Cheng, Han-Ming Lai, Shan-Fu Yu, Wen-Chan Chiu, Chung-Yuan Hsu, Jia-Feng Chen, YW, Wang

高雄長庚風濕免疫科

Background:

Pulmonary disease is a common manifestation of rheumatoid arthritis (RA), clinical symptoms are variable, most commonly dyspnea and cough, with some patients rapidly deteriorating while others remain relatively stable. Pulmonary function testing (PFT) may be better suited for assessing progression, forced vital capacity (FVC) and diffusing capacity for carbon monoxide (DLCO) are the most sensitive parameters for assessing the clinical course.

Body composition can be more reliable predictors of mortality in pulmonary involvement. Few studies in the literature have correlated the prevalence of muscle mass changes with indices of lung disease. In addition, to date, there have been no studies correlating muscle mass with the prognosis of lung disease.

Purpose:

the aim of this study was to collect RA patients and evaluate the association between DLCO and muscle mass.

Methods:

A cross-sectional study was conducted. A total of 150 RA subjects were included. All patients accepted pulmonary function, dual energy X-ray absorptimery for muscle mass measurement. Medical history, renal and liver function were collected.

Results:

A total of 150 patients were included.. The mean age was 55.73±12.52 years old. The mean BMI was 22.93±13.81 kg/m2. 122(81.1%) was female, 10(6.7) had smoking, 10(6.7)had alcohol consumption，143(95.3)had rheumatoid arthritis, 15(10.0) had diabetes mellitus, 27(18) had hypertension，no patients had neurological disease, 83(20.4) had chronic liver disease, 3(2.0%) had chronic kidney disease，the mean uscle mass change was 0.16±0.33 kg/m^2.

When we used multiple linear regression test we found sex, BMI, kidney disease and DLCO can predict muscle mass change with male less muscle mass change, higher BMI had less muscle change, kidney disease had more muscle mass change,while DLCO had more muscle mass change.

Conclusion: the present study showed that decreased skeletal muscle mass was independently associated with low levels of PFT parameters.(DLCO) For the first time, our results indicated the clinical significance of low skeletal muscle mass as a potential risk for pulmonary dysfunction .

Keywords: Rheumatoid arthritis, diffusing capacity for carbon monoxide (DLCO), muscle mass.

Table Multiple linear regression to predict muscle loss

	Unstandardized Coefficients		Standardized Coefficients			Collinearity Statistics	
	B	Std. Error	Beta	t	Sig.	Tolerance	VIF
	0.374	0.287		1.302	0.195		
性别	0.201	0.092	0.233	2.182	0.031	0.476	2.101
年龄	-0.002	0.003	-0.064	-0.626	0.532	0.523	1.912
BMI	0.023	0.006	0.333	3.554	0.001	0.618	1.618
抽菸	-0.284	0.178	-0.211	-1.598	0.112	0.313	3.196
喝酒	0.114	0.164	0.085	0.696	0.487	0.369	2.714
RA	-0.246	0.160	-0.154	-1.538	0.126	0.540	1.853
DM	0.095	0.087	0.084	1.089	0.278	0.905	1.105
HTN	0.158	0.086	0.181	1.837	0.068	0.560	1.786
Renal	-0.643	0.239	-0.268	-2.697	0.008	0.551	1.816
Pre-Bronchodilator FVC	0.173	0.088	0.289	1.961	0.052	0.250	3.995
Best DLCO	-0.063	0.016	-0.643	-3.934	0.001	0.203	4.919

海報摘要 TCR05

Decreased HDAC6 mRNA expression are associated with sacropenia in rheumatoid arthritis

Authors: Tzu-Jung Fang[1,2], Min-HSi Chiu[3,4], Ming-Shyan Huang[5,6], Chia-Yen Dai [7,8], Yao-Tsung Yeh[3,4]*, Jeng-Hsien Yen[1,9,10,11] *

方姿蓉，邱敏熙，黃明賢，戴嘉言，葉耀宗，顏正賢

Affiliations:

1. Graduate Institute of Clinical Medicine, College of Medicine, Kaohsiung Medical University, Taiwan
2. Division of Geriatrics and Gerontology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Taiwan
3. Aging and Disease Prevention Research Center, Fooyin University, Taiwan
4. Biomedical Analysis Center, Fooyin University Hospital, Taiwan
5. E-Da Cancer Hospital, Kaohsiung, Taiwan.
6. School of Medicine, I-Shou University, Kaohsiung, Taiwan.
7. Hepatobiliary Division, Department of Internal Medicine, Kaohsiung Medical University Hospital, Kaohsiung Medical University, Taiwan
8. School of Medicine, College of Medicine, Kaohsiung Medical University, Taiwan
9. Division of Rheumatology, Allergy, and Immunology, Department of Internal Medicine, Kaohsiung Medical University Hospital, Taiwan
10. College of Biological Science and Technology, National Yang Ming Chiao Tung University, Taiwan
11. Institute of Medical Science and Technology, National Sun Yat-sen University, Kaohsiung, Taiwan.

* Correspondence:

Jeng-Hsien Yen jehsye@kmu.edu.tw; No.100 Tzyou 1st Road, Kaohsiung 807, Taiwan

Yao-Tsung Yeh is the co-corresponding author

高雄醫學大學臨床醫學研究所

高雄醫學大學附設中和紀念醫院內科部老年醫學科

輔英科技大學附設醫院生醫檢測中心

輔英科技大學老化及疾病預防研究中心

義大癌治療醫院

義守大學醫學院

高雄醫學大學附設中和紀念醫院內科部肝膽胰內科

高雄醫學大學醫學系

高雄醫學大學附設中和紀念醫院內科部過敏免疫風溼科

國立陽明交通大學生物科技學院

國立中山大學醫學科技研究所

Background: The obese people have the relative risk of 1.31 to has rheumatoid arthritis（RA） in a meta-analysis, though heterogenicity exists. We found HDAC6 mRNA expression decreased in RA patients. Decreased HDAC6（(Histone Deacetylase 6）was reported to increase age-dependent fat accumulation in drosophila. But the mechanism was not reported in human.

Methods: The 93 patients and controls signed written informed consent forms to participate the study. Sacropenia was diagnosed by the 2019 Asian Sarcopenia Working Group’s diagnostic criteria. The Leptin, adiponectin and skeletal muscle cell lines C2C12 (ATCCR CRL-1772™) were purchased. After three days the initiation of differentiation, the recombinant leptin and adiponectin receptor agonist (adipoRon) were added onto C2C12 myotubes. After 48 h-incubation, the protein and mRNA were collected for western blot and real-time qPCR. The HDAC6 mRNA expression was checked by real-time qPCR in peripheral blood of

people and in the C2C12 muscle cells. All experimental procedures were performed as the manufacturer’s protocol.

Result: We found the HDAC6 mRNA expression was lower in RA patients with sarcopenia than those without ($p<0.05$). Treating leptin and adiponectin on muscle cells reduced HDAC6 expression and increased the Perlin 2 mRNA expression. Besides, the myogenin decreased and MAFbx increased.

Conclusion: The decreased HDAC6 expression may play a role in sarcopenia development of RA patients.

海報摘要 TCR06

Potential alleviation of bone mineral density loss with Janus kinase inhibitors in rheumatoid arthritis

Yun-Wen Chen[1], Hsin-Hua Chen[1], Wen-Nan Huang1, Jun-Peng Chen[2], Yi-Hsing Chen[1], Yi-Ming Chen[1 *]
陳韻文 [1], 陳信華 [1], 黃文男 [1], 陳俊朋 [2], 陳怡行 [1], 陳一銘 [1 *]
[1] Division of Allergy, Immunology and Rheumatology, Taichung Veterans General Hospital, Taichung, Taiwan
[2] Biostatistics Task Force of Taichung Veterans General Hospital, Taichung, Taiwan
[1] 臺中榮民總醫院過敏免疫風濕科
[2] 臺中榮民總醫院生物統計小組

Abstract

Background: Rheumatoid arthritis (RA) is characterized by localized bone loss, general osteoporosis and increased fracture risks. Tumour necrosis factor inhibitor (TNFi), non-tumour necrosis factor inhibitors (non-TNFi), Janus kinase inhibitor (JAKi) had shown the suppression effects to osteoclast activation and improvement of bone mineral density (BMD). Anti-cyclic citrullinated peptide antibody (ACPA) is associated with osteoclast activation and the resultant bone loss. However, few studies have compared BMD changes among patients with RA treated with targeted therapies that have different mechanisms of action.

Methods: This retrospective study recruited patients with RA who had undergone BMD testing twice. Changes in the BMD were compared using the generalized estimating equation (GEE) in treatment groups that received conventional synthetic disease-modifying anti-rheumatic drugs (csDMARDs), TNFi, non-TNFi, and JAKi.

Results: In total, 362 patients with RA were enrolled (csDMARDs, n = 153, TNFi, n = 71, non-TNFis, n = 108, JAKis, n = 30). We observed greater changes in femoral BMD (left, 0.06, 95% CI 0.01–0.12, p = 0.016; right, 0.09, 95% CI 0.04–0.15, p = 0.001 by GEE) following JAKi treatment as compared with other treatments. Compared to the ACPA-negative group, patients with ACPA positivity exhibited greater improvement in the femoral BMD (left, 0.09, 95% CI 0.02–0.15, p = 0.008; right, 0.11, 95% CI 0.05–0.18, p = 0.001).

Conclusion: Compared to other targeted therapies, JAKi might exert a more potent effect to prevent BMD loss, specifically in ACPA-positive patients with RA, and could be a potential therapeutic option to mitigate generalized bone loss.

Table. Adjusted Generalized Estimating Equation analysis of BMD among RA patients by ACPA positivity or negativity

ACPA positive	**BMD, spine**		**p-value**	**BMD, left femoral neck**		**p-value**	**BMD, right femoral neck**		**p-value**
	BMD	**95% CI**		**BMD**	**95% CI**		**BMD**	**95% CI**	
Age	−0.01	(−0.01, −0.01)	<0.001**	−0.01	(−0.01, 0.00)	<0.001**	−0.01	(−0.01, 0.00)	<0.001**
Sex									
Female	Reference			Reference			Reference		
Male	−0.01	(−0.10, 0.09)	0.853	0.04	−(0.03, 0.11)	0.306	0.04	(−0.04, 0.11)	0.347
DAS28	−0.01	(−0.03, 0.01)	0.282	−0.01	−(0.03, 0.01)	0.187	−0.01	(−0.02, 0.01)	0.460
Glucocorticoid treatment	−0.18	(−0.25, −0.11)	<0.001**	−0.17	(−0.23, −0.11)	<0.001**	−0.16	(−0.21, −0.10)	<0.001**
DMARDs group									
csDMARDs	Reference			Reference			Reference		
TNFi	−0.01	(−0.09, 0.07)	0.766	0.01	(−0.03, 0.06)	0.523	0.00	(−0.04, 0.04)	0.993
Non-TNFi	0.01	(−0.07, 0.08)	0.867	0.01	(−0.04, 0.06)	0.745	0.01	(−0.04, 0.05)	0.786
JAKi	0.04	(−0.05, 0.14)	0.361	0.09	(0.02, 0.15)	0.008**	0.11	(0.05, 0.18)	0.001**
Duration between BMD tests	−0.02	(−0.04, 0.00)	0.015*	−0.01	(−0.02, 0.00)	0.040*	−0.01	(−0.02, 0.00)	0.003**
ACPA negative									
	BMD, spine		**p-value**	**BMD, left femoral neck**		**p-value**	**BMD, right femoral neck**		**p-value**
	BMD	**95% CI**		**BMD**	**95% CI**		**BMD**	**95% CI**	
Age	0.00	(−0.01, 0.00)	0.001**	−0.01	(−0.01, 0.00)	<0.001**	−0.01	(−0.01, 0.00)	<0.001**
Sex									
Female	Reference			Reference			Reference		
Male	0.05	(−0.08, 0.18)	0.477	0.02	(−0.07, 0.11)	0.707	−0.01	(−0.10, 0.09)	0.885

DAS28	0.02	(−0.00, 0.05)	0.113	0.02	(0.00, 0.03)	0.011*	0.02	(0.00, 0.03)	0.008**
Glucocorticoid treatment	––			––			––		
DMARDs group									
csDMARD	Reference			Reference			Reference		
TNFi	−0.06	(−0.19, 0.07)	0.346	−0.05	(−0.15, 0.04)	0.295	−0.05	(−0.14, 0.04)	0.281
Non-TNFi	0.00	(−0.13, 0.12)	0.955	−0.01	(−0.09, 0.07)	0.775	0.00	(−0.06, 0.07)	0.881
JAKi	0.01	(−0.13, 0.15)	0.886	0.02	(−0.08, 0.11)	0.726	0.04	(−0.03, 0.12)	0.276
Duration between BMD tests	0.00	(−0.02, 0.01)	0.590	0.00	(−0.02, 0.01)	0.485	0.00	(−0.01, 0.01)	0.806

*p<0.05, **p<0.01

Adjustment: demographics and RA treatment. BMD: bone mineral density; RA: rheumatoid arthritis; CI: confidence interval; ACPA: anticitrullinated protein antibody; DAS28: 28-joint Disease Activity Score; DMARDs: disease-modifying antirheumatic drugs; TNFi: tumour necrosis factor inhibitor; non-TNFi: non-tumour necrosis factor inhibitor; JAKi: Janus kinase inhibitor.

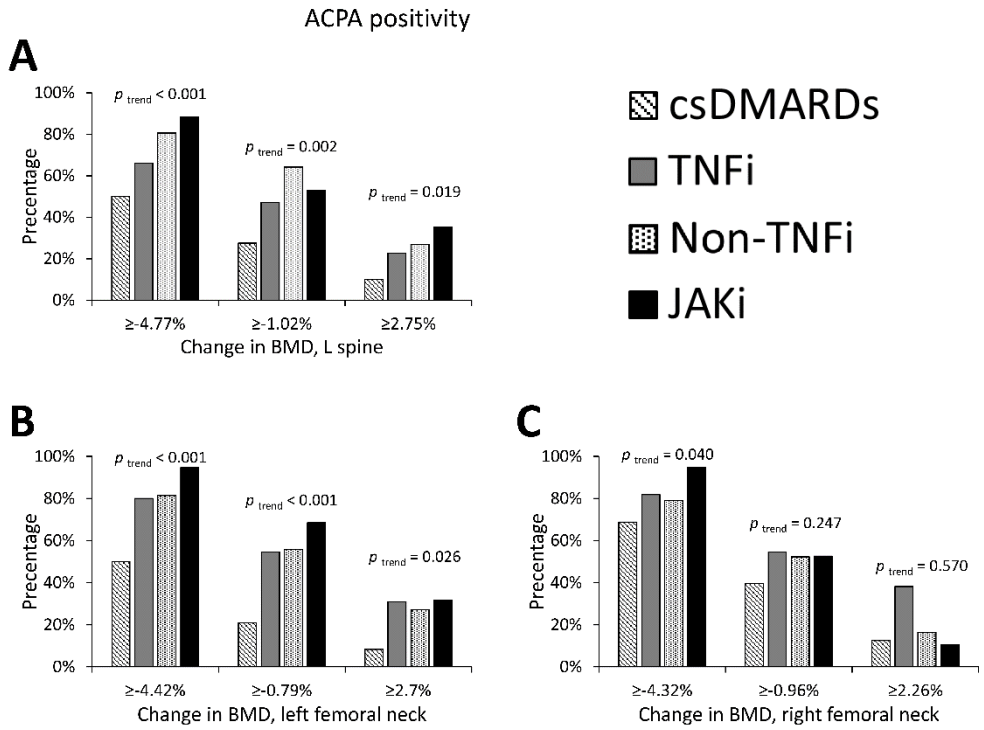

Figure. Proportion of ACPA-positive participants classified by RA treatment and quartiles of BMD changes. Changes in the (A) L spine, (B) left femoral neck, and (C) right femoral neck. In A, −4.77%, −1.02%, and 2.75% indicate the Q1, Q2, and Q3 cut-offs, respectively, of percent changes in the BMD at the L spine. In B, −4.42%, −0.79%, and 2.70% indicate the Q1, Q2, and Q3 cut-offs, respectively, of percent changes in the BMD at the left femoral neck. In C, −4.32%, −0.96%, and 2.26% indicate the Q1, Q2, and Q3 cut-offs, respectively, of percent changes in the BMD at the right femoral neck. Chi-square test: *p<0.05, **p<0.01. BMD: bone mineral density; RA: rheumatoid arthritis; ACPA: anticitrullinated protein antibody; csDMARDs: conventional synthetic disease-modifying antirheumatic drugs; TNFi: tumour necrosis factor inhibitor; Non-TNFi: non-tumour necrosis factor inhibitor; JAKi: Janus kinase inhibitor.

海報摘要 TCR07

The Impact of Regular Daily Vegan Diet on Bone Mineral Density in Postmenopausal Rheumatoid Arthritis Patients

Yu-Ting Lin[1], Hsiao-Ru He[1], Yu-Jih Su[1,2], Han-Ming Lai[1], Shan-Fu Yu[1,2], Wen-Chan Chiu[1], Chung-Yuan Hsu[1], Jia-Feng Chen[1], Ying-Chou Chen[1,2], Yu-Wei Wang[1] and Tien-Tsai Cheng[1,2]

[1]Division of Rheumatology, Allergy and Immunology, Department of Internal Medicine, Kaohsiung Chang Gung Memorial Hospital, Kaohsiung, Taiwan

[2]Chang Gung University College of Medicine, Kaohsiung, Taiwan

林昱廷，何曉儒，蘇昱日，賴漢明，尤珊富，邱文燦，許鍾元，陳嘉夆，陳英州，王鈺維，鄭添財

1 高雄長庚紀念醫院 內科部 過敏免疫風濕科

2 長庚大學 醫學系

Background:

Transient vegan diet may reduce rheumatoid arthritis (RA) activity in some studies. Vegan diet benefits those with metabolic syndrome and cardiovascular complications in RA. Impact of sustained vegan diet on RA patients' disease activity and bone mineral density (BMD)/fracture is unclear. The aims of this study were to examine the effects of a prolonged vegan diet on BMD/fracture (Primary) and disease activity (secondary) in patients with RA.

Material and Methods:

This is an interim analysis of a registry study on RA-related osteoporosis/fracture at Chang Gung Memorial Hospital in Kaohsiung (CGMHK). A consecutive series of postmenopausal patients with RA who had attended the rheumatology clinic at CGMHK since September 1, 2014, and met the classification criteria for RA were included in the study. Data on demographics, clinical characteristics, DAS28-ESR (disease activity in 28 joints), previous fractures, and elements of FRAX® were collected. Patients were categorized based on long-term regular vegan diets (V group) or not (non-V group). The participants in group V consisted in the study group (A). And the control group(B) consisted of matching (1:2) by age and estimated Glomerular filtration rate (eGFR) with group A.

Results:

A total of 385 participants were enrolled in this interim analysis study, with 27 (7%) following a long-term (> 3years) vegan diet and 358 (93%) adhering to a non-vegan diet. After matching, 27 and 54 participants were allocated to group A and B, respectively. Group A showed no significant differences demographics, clinical characteristics, and BMD/fracture compared to group B (table). However, group A participants had significantly lower Vitamin D, and higher iPTH levels compared to participants in group B (table).

Conclusion:

Long- term vegan diet in postmenopausal RA patients did not significantly affect disease activity, BMD, or fracture rates. However, RA patients on vegan diet had lower Vitamin D and higher iPTH levels than non-vegan counterparts. Further investigation required to understand long-term implications of these differences in RA patients following a vegan diet.

Table Demographics and clinical characteristics of participants after matching age and eGFR

Demographics	Group A (n=27)	Group B (n=54)	p
Age (years old)	60.1 (8.1)	59.2 (7.5)	0.639
Age at menopause (years)	49.7 (3.1)	50.1 (3.7)	0.704
Body height (cm)	154.7 (5.9)	153.8 (5.9)	0.505
Body weight (kg)	53.6 (9.3)	53.7 (9.4)	0.967
BMI (kg/m2)	22.3 (3.4)	22.7 (3.6)	0.692
DAS28	3.2 (0.8)	3.7 (1.2)	0.056
MeanDas28	3.1 (0.8)	3.1 (0.9)	0.836
Previous fracture, n (%)	9 (34.6)	15 (32.6)	0.611
New fracture, n (%)	10 (38.5)	15 (32.6)	0.507
Drug			
Steroid use, n (%)	22 (84.6)	39 (84.8)	0.822
b/ts DMARDs use, n (%)	1 (3.9)	8 (17.4)	0.136
Bone-modifying agent, n (%)	6 (23.1)	12 (26.1)	0.855
BMD (g/cm2)			
Femoral neck (g/cm^2)	0.591 (0.126)	0.575 (0.088)	0.552
Hip (g/cm^2)	0.750 (0.168)	0.734 (0.130)	0.646
L1~L4 (g/cm^2)	0.812 (0.170)	0.837 (0.141)	0.481
Lab			
Creatinine (mg/dL)	0.6 (0.2)	0.6 (0.1)	0.576
eGFR (ml/min/1.72m^2)	103.3 (30.6)	103.3 (31.1)	0.998
iPTH (pg/mL)	59.3 (38.0)	39.4 (16.2)	0.014
Vitamin D (ng/mL)	17.4 (7.3)	22.4 (6.8)	0.004
Ca (mg/dL)	9.3 (0.3)	9.3 (0.4)	0.720

Abbreviation BMI, body mass index; b/ts DMARDs; Biologic and targeted Synthetic disease-modifying antirheumatic drugs; BMD, Bone mineral density; Ca: Calcium; DAS28, Disease activity score by 28 joints; L1-4, Lumbar spine 1st-4th; estimated Glomerular filtration rate (eGFR); iPTH, Intact parathyroid hormone

海報摘要 TCR08

Anti-SAE Antibody May Be a Protective Factor from Anti-MDA5 Antibody Positive Patients with Progressive Fibrotic Interstitial Lung Disease

Hung-Cheng Tsai(蔡弘正)[1,2], Wei-Sheng Chen(陳瑋昇)[1,2], Tao-Shen Ou(歐道昇)[1,2], Yi-Ning Yen(顏憶寧)[1,2], Ying-Ying Yang(楊盈盈)[2,4,5], Hsien-Tzung Liao(廖顯宗)[1,2], Chang-Youh Tsai (蔡長祐)[1,2,3,4]

1. Division of Allergy and Immunology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan
   台北榮民總醫院過敏免疫風濕科
2. Faculty of Medicine, School of Medicine, National Yang-Ming University School of Medicine, Taipei, Taiwan
   國立陽明大學醫學系內科學系
3. Division of Allergy, Immunology & Rheumatology, Fu Jen Catholic University Hospital
   國防醫學院生命科學研究所
4. Institute of Clinical Medicine, National Yang-Ming University School of Medicine, Taipei, Taiwan
   國立陽明大學臨床醫學研究所
5. Division of Gastroenterology and Hepatology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan
   台北榮民總醫院肝膽腸胃科

Background

Anti-MDA5 antibody positive (anti-MDA5+)-dermatomyositis (DM) is notorious for causing progressive fibrotic interstitial lung disease (PF-ILD) with high mortality rate. But anti-MDA5 antibodies are also found in other diseases and the link between anti-MDA5+-diseases and PF-ILD as well as their mortality have not been well investigated before. We analyzed retrospectively the risk and prognostic factors in anti-MDA5+-PF-ILD.

Methods

We reviewed basic clinical features, laboratory findings, concurrent myositis antibodies, connective tissue disease (CTD) as well as newly developed malignancies in 71 anti-MDA5+ patients, and compared them in terms of the presence or absence of PF-ILD.

Result

Among 71 patients, 39 (55%) exhibited dermatomyositis and 33 (46%) developed PF-ILD in the course of disease. Twenty-seven (38%) concurred with other CTDs and 15 (21.1%) were comorbid with malignancies. Senility (odds ration [OR]=1.816, *P*=0.032), a presence of Ro-52 antibody (OR=1.676, *P*=0.018), the elevation of C-reactive protein (CRP, OR= 4.354, *P*<0.001) and carcinoembryonic antigen (CEA, OR=2.625, *P*=0.005) posed risk for PF-ILD. Higher lactose dehydrogenase (LDH, *p*=0.009), CRP (*p*=0.001), CEA (*p*=0.001), & ferritin ($p \leq 0.001$) and lower albumin ($p \leq 0.001$) were significantly associated with mortality. Anti-SAE antibodies were found to be negatively correlated to PF-ILD as analyzed by univariate (OR=0.245, *P*=0.017) and multivariate (OR= 0.058, *P*=0.036) regression methods and were thus regarded as a protect factor from PF-ILD (OR= 0.543, *P*=0.008) or death (OR= 0.707, *P*=0.012) as calculated in subgroup analyses.

Conclusion

In addition to various risk factors for PF-ILD and mortality, anti-SAE antibodies were conversely a protective factor from them in anti-MDA5$^+$ patients.

海報摘要 TCR09

Coexistence of Anti-MDA5 and Anti-Ro52 Antibodies in Cases of Idiopathic Inflammatory Myopathy: A Retrospective Cohort Study

Yu Chen[1], Yen-Fu Chen[2], Tien-Ming Chan[3*]

1.Division of Rheumatology, Allergy and Immunology, New Taipei Municipal Tucheng Hospital, Chang Gung Memorial Hospital, New Taipei City, Taiwan, R.O.C.

2.Division of Rheumatology, Allergy and Immunology, Chang Gung Memorial Hospital at Linkou, Tao-Yuan, Taiwan, R.O.C.

3.Division of Rheumatology, Allergy, and Immunology, Departement of Internal Medicine, Chang Gung Memorial Hospital, Linkou and Chang Gung University, Tao Yuan, Taiwan, R.O.C.

*Correspondence: Tien-Ming Chan

抗MDA5抗體陽性與抗Ro52抗體共存的特發性炎症性肌炎病例分析：回顧性研究

陳遊[1], 陳彥輔[2], 詹天明[3*]

1.新北市立土城醫院 風濕過敏免疫科

2.林口長庚醫院 風濕過敏免疫科

3.林口長庚紀念醫院內科部風濕過敏免疫科；長庚大學

Objective

Patients diagnosed with idiopathic inflammatory myopathy (IIM) and anti-melanoma differentiation-associated protein 5 (MDA5) antibodies have a high likelihood of interstitial lung disease (ILD), ranging from 50% to 95%, and a mortality rate of approximately 33% to 60%. Furthermore, patients who have both anti-MDA5 and anti-Ro-52 antibodies (anti-MDA5+/anti-Ro 52+) have a more severe prognosis of ILD compared to those with anti-MDA5 antibodies alone. In this study, we aim to differentiate between ILD and serology in IIM patients with anti-MDA5 antibodies, with and without anti-Ro-52 antibodies.

Methods

We collected a total of 32 patients diagnosed with anti-MDA5-positive DM or PM from May 2018 to December 2022. We reviewed the clinical data and serological parameters of these patients and compared them with those who were positive and negative for anti-Ro-52.

Results

Out of 32 cases of DM/PM with anti-MDA5 antibodies, 16 had anti-Ro52 antibodies while the other 16 did not. Patients with both anti-Ro52 and anti-MDA5 had a higher frequency of ILD (81.35% vs. 43.75%, p=0.028), a higher frequency of Ground-glass opacity pattern (56.25% vs. 6.25%, p=0.020), and higher CRP levels. They also tended to be older (54.2 vs. 42.1 years, p=0.020). Patients with anti-Ro52+/anti-MDA5+ had a lower cumulative survival rate at 6 months compared to those without anti-Ro52 antibodies (75% vs. 93.75%, P=0.143).

Conclusions

Individuals suffering from IIM and presenting with both anti-MDA5 and anti-Ro52 antibodies may encounter more severe pulmonary complications and a less promising outlook.

海報摘要 TCR10

The Role of Anti-SAE Autoantibodies in Interstitial Lung Disease: A Retrospective Cohort Analysis in Taiwan

Chao-Yang Hsiao[1,2], Tien-Ming Chan[1*]
1 Division of Rheumatology, Allergy and Immunology, Department of Internal Medicine, Chang Gung Memorial Hospital, and Chang Gung University, Tao-Yuan, Taiwan, and
2 Department of Biomedical Sciences and Engineering, National Central University, Taiwan.
*Correspondence to: Dr. Tien-Ming Chan
TEL: 0988845835
Email: joymingo@gmail.com
Division of Rheumatology, Allergy and Immunology
Chang Gung Memorial Hospital

Background:
Autoantibodies against the small ubiquitin-like modifier (SUMO) activating enzyme (SAE), considered a subgroup of myositis autoantibodies, are not commonly encountered. Limited research has been conducted to investigate their relationship with Interstitial Lung Disease (ILD), and the findings from these studies are often inconsistent.

Methods:
In this study, we analyzed banked sera from patients who visited the Chang Hung Memorial Hospital system from May 2018 to December 2021. Using the Euroimmun platform, we screened for myositis-specific autoantibodies, placing a special focus on anti-SAE autoantibodies. Results were catagrozied into negative, borderline, weak positive, moderate positive and strong positive based on their corresponding band intensities. The cohort positive patients, whose clinical features were extracted from medical records. Odds ratios (ORs) and 95% confidence intervals (CIs) for interstitial lung disease outcomes were estimated.

Results:
Among the 82 patients assessed, 9 (10.9%) presented moderate to strong anti-SAE autoantibodies, while 73 (89.1%) showed weak positivity. Six individuals from the strongly positive group satisfied the criteria for Idiopathic inflammatory myopathies (IIM) diagnosis. Notably, within these six strongly anti-SAE positive IIM patients, five exhibited a definitive ILD. An interesting finding was that five of the nine patients with moderate to strong positivity displayed ILD, contrasting with only six of the 73 patients with weak positivity. Consequently, moderate to strong anti-SAE autoantibodies were linked to a tenfold increased risk of ILD (adjusted OR 10.05, 95% CI 1.05-96.40, P= 0.045).

Conclusions:
This study revealed a significant link between anti-SAE autoantibody positivity and ILD, suggesting potential ILD screening in these patients.

皮肌炎抗體 SAE 陽性與間質性肺病的關聯性：一個回溯性世代研究

蕭朝陽 [1,2] 詹天明 [1]
[1] 林口長庚醫院風濕過敏免疫科
[2] 中央大學轉譯醫學研究所

背景:闡明皮肌炎抗體 SAE 陽性與間質性肺病的關聯性

方法:回溯性研究單一醫療體系中 82 位使用免疫印跡法顯示為 SAE 抗體陽性的患者依據抗體價數分成弱陽性與強陽性兩個族群，使用羅吉斯回歸模型評估 SAE 抗體價數與間質性肺病的關聯性

結果:82 位 SAE 抗體陽性的患者可再區分為 SAE 抗體強陽性(n=9) 、SAE 抗體弱陽性(n=73)，SAE 抗體強陽性(n=9)中有 5 位有間質性肺病(n=5)而 SAE 抗體弱陽性中(n=73)中有 6 位有間質性肺病，羅吉斯迴歸分析顯示 SAE 抗體強陽性與間質性肺病顯著相關(OR 10.05. 95% CI 1.05-96.40, P= 0.045)

結論:台灣患者使用免疫印跡法顯示 SAE 抗體強陽性者與間質性肺病顯著相關。

海報摘要 TCR11

Comparative Analysis of Multiple Detection Methods for anti-MDA5 Antibody in Dermatomyositis Patients Find a High False Positive Rate by Line Immunoblot Assay.

Joung-Liang Lan[1,2,3,*],Kai-Fa Teo[4], and Jye-Lin Hsu[4,5*]

藍忠亮 ，張凱發 ，徐婕琳

[1] College of Medicine, China Medical University, Taichung, Taiwan.

[1]中國醫藥大學醫學系

[2] Rheumatology and Immunology Center, China Medical University Hospital, Taichung, Taiwan.

[2]中國醫藥大學附設醫院風濕免疫中心

[3] Rheumatic Diseases Research Center, China Medical University Hospital, Taichung, Taiwan.

[3]中國醫藥大學附設醫院風濕病研究中心

[4]Graduate Institute of Biomedical Sciences, China Medical University, Taichung, Taiwan.

[4]中國醫藥大學生物醫學研究所

[5] Drug Development Center, China Medical University, Taichung, Taiwan.

[5] 中國醫藥大學新藥開發研究中心

Background: The anti-melanoma differentiation-associated gene 5 (MDA5) antibody is a significant prognostic indicator for interstitial lung disease (RP-ILD). However, line blot analysis with the EUROLINE Myopathies Ag kit has shown a high incidence of false positives for MDA5 in many patients. Our objective is to establish a non-radioactive standard method for accurately detecting the anti-MDA5 antibody in DM patients. The findings from this study will contribute to improved accuracy in diagnosing MDA5 antibody associated.

Methods: We compared the presence of anti-MDA5 antibody using four different methods: gold standard radioimmunoassay, line Immunoblot analysis with the EUROLINE Myopathies Ag kit, immunocytochemistry, and immunoprecipitation assay.

Results : Among the 66 patients initially diagnosed as MDA5 positive by line blot analysis, 25 were determined to be false positives. This highlights the importance of using additional detection methods to validate and confirm the presence of MDA5 antibodies. In addition, our modified immunoprecipitation assay, utilizing activated THP-1 cell lysate, demonstrated a positive rate similar to the gold standard radioimmunoassay (Fig 1). The positive predictive value of the modified immunoprecipitation assay was 100%, indicating its high accuracy in detecting MDA5 antibodies. Immunocytochemistry also showed a relatively high positive predictive value of 84.78%, while line blot analysis had a lower positive predictive value of 62.12%.

Conclusion : The modified immunoprecipitation assay demonstrates a high level of accuracy comparable to the gold standard radioimmunoassay. It can serve as a reliable alternative to the radioimmunoassay, providing accurate detection of the anti-MDA5 antibody and eliminates radioactive contaminants and false positivity.

Figure 1

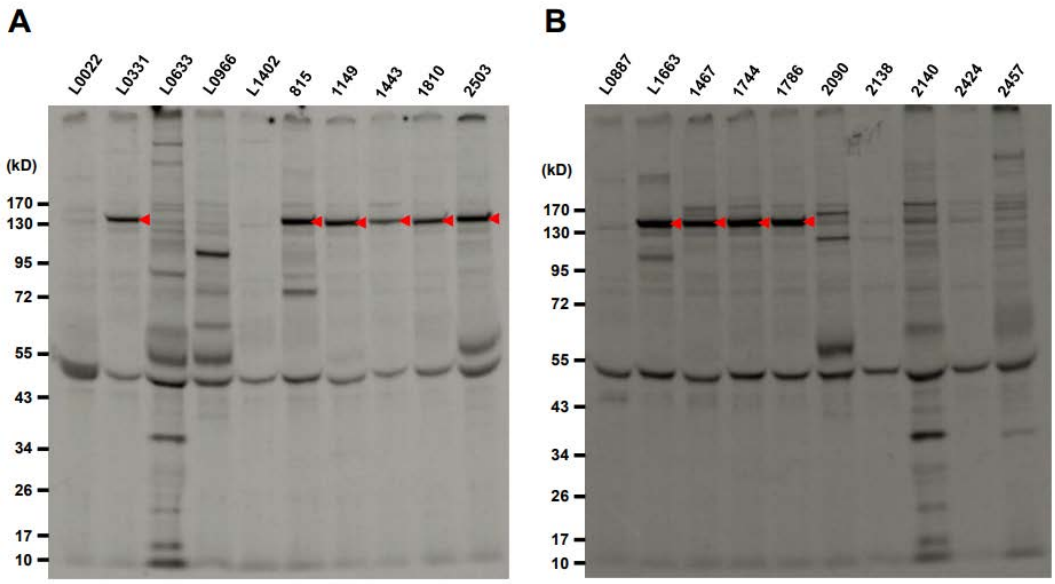

Figure 1.

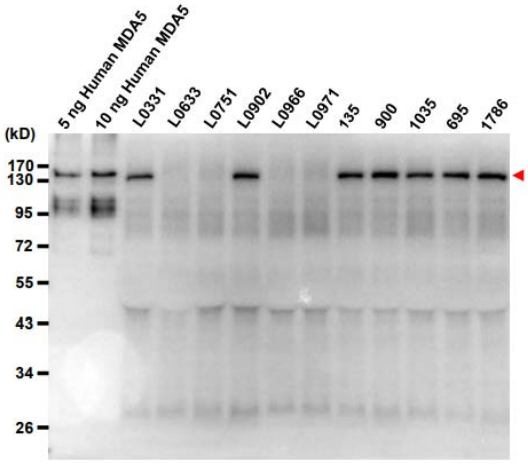

Figure 1. Identification of anti-MDA5 antibodies in DM patient plasmas using immunoprecipitation of MDA5 antigen followed by Western blot analysis. THP-1 cells were stimulated to differentiate into macrophages. Subsequently, cells were harvested, and their lysates were subjected to immunoprecipitation using patient plasmas. A Western blot was conducted to verify the presence of the MDA5 antigen. To quantify MDA5, various amounts of purified MDA5 protein were used as references. The red arrow indicates the position of the MDA5 antigen band.

海報摘要 TCR12

Title:Comparative Efficacy of Pirfenidone in Patients with Idiopathic Pulmonary Fibrosis with and without Autoantibodies

Authors: Yu-Tso, Li[1,2]*, Cheng-Yu Chang[3,4]*, Yu-Feng Wei [5,6]*, Chung-Yu Chen[7 8]*, Yi-Chun Lai [9,10,]*, Po-Wei Hu [9,10,], Jui-Chi Hung[3], Chi-Hsiang Chu[12], Chien-Hung Chen[13], Shih-Chieh Chang[9, 10, 11]

Affiliations:

[1]Division of Allergy, Immunology, and Rheumatology, Department of Medicine, Taipei Veterans General Hospital, Taipei, Taiwan

[2]Department of Internal Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan

[3]Division of Chest Medicine, Department of Internal Medicine, Far Eastern Memorial Hospital, New Taipei City, Taiwan

[4] **Nursing Department, Cardinal Tien Junior College of Healthcare and Management**, New Taipei City, Taiwan

[5]School of Medicine for International Students, College of Medicine, I-Shou University, Kaohsiung, Taiwan.

[6]Department of Internal Medicine, E-Da Cancer Hospital, I-Shou University, Kaohsiung, Taiwan.

[7]Department of Internal Medicine, National Taiwan University Hospital Yunlin Branch, Yunlin County, Taiwan

[8]College of Medicine, National Taiwan University, Taipei, Taiwan

[9]Division of Chest Medicine, Department of Internal Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan

[10]Faculty of Medicine, College of Medicine, National Yang-Ming Chiao Tung University, Taipei, Taiwan

[11]Department of Critical Care Medicine, National Yang-Ming Chiao Tung University Hospital, Yi-Lan, Taiwan

[12]Department of Statistics, Tunghai University, Taichung, Taiwan

[13]Department of Microbiology, Soochow University, Taipei, Taiwan

*Contributed equally to the work.

Abstract

Background: Pirfenidone is one of the anti-fibrotic drugs that are newly developed treatment options for patients with idiopathic pulmonary fibrosis (IPF) over the past 10 years. Our study aimed to investigate whether there is a prognostic difference between patients with IPF with or without autoantibodies treated with pirfenidone.

Patients and Methods: Patients with IPF, diagnosed based on the “2018 ATS/ERS/JRS/ALAT guideline for IPF”, were enrolled from January 2019 to December 2020 in four hospitals in Taiwan and divided into those with and without autoantibodies. All patients received pirfenidone and were followed up for at least 1 year. The primary composite outcomes include a decline of ≥ 10% in forced vital capacity (FVC), acute exacerbation, and all-cause mortality after receiving 1-year pirfenidone treatment. Multivariate logistic regression analysis for risk factors, including positive autoantibodies, was performed.

Results: Of the 50 patients with IPF enrolled, 11(22%) had positive autoantibodies, and 39 (78%) did not. The mean age of diagnosis and enrollment into the study of the two groups showed no difference (74.8±9.8 vs 73.9±10.3, p=0.781), nor did the modified Medical Research Council (mMRC) dyspnea scale (1.5±0.8 vs 1.8±0.7, p=0.188) or the FVC (67.6±10.6% vs 66.0±11.7%, p=0.679). After 1-year follow-up after pirfenidone treatment, the incidence of composite outcome of the antibody-positive group (63.3%) was higher than that of the opposing group (38.5%), although it is not statistically significant

(p=0.178). The multivariate analysis for risk factors showed no significant statistical differences.

Conclusion: No significant prognostic difference was observed in patients with IPF with or without autoantibodies after receiving 1-year pirfenidone treatment.

Keywords: Pirfenidone, Idiopathic Pulmonary Fibrosis, autoimmune antibody

海報摘要 TCR13

Efficacy and Safety of Adalimumab Treatment in Patients with Ankylosing Spondylitis in Taiwan: A Prospective Real-World Study

以 adalimumab 治療台灣僵直性脊椎炎患者的療效和安全性：一項前瞻性的真實世界研究

Feng-Cheng Liu[1], Cheng-Hsun Lu[2], Chang-Fu Kuo[3], Hsien-Tzung Liao[4], Shinn-Shing Lee[5], Kuei-Ying Su[6], Wan-Yu Sung[7], Wen-Chan Tsai[7], Hsin-Hua Chen[8], Hung-An Chen[9], James Cheng-Chung Wei[10], Jui-Cheng Tseng[11], Meng-Yu Weng[12], Hsiang-Cheng Chen[1], Song-Chou Hsieh[2]

劉峰誠[1]，呂政勳[2]，郭昶甫[3]，廖顯宗[4]，李信興[5]，蘇桂英[6]，宋婉瑜[7]，蔡文展[7]，陳信華[8]，陳宏安[9]，魏正宗[10]，曾瑞成[11]，翁孟玉[12]，陳相成[1]，謝松洲[2]

[1] Tri-Service General Hospital, Taipei, Taiwan;

[2] National Taiwan University Hospital, Taipei, Taiwan;

[3] Chang Gung Medical Foundation, LinKou Branch, Taoyuan City, Taiwan;

[4] Taipei Veterans General Hospital, Taipei, Taiwan;

[5] Cheng Hsin General Hospital, Taipei, Taiwan;

[6] Buddhist Tzu Chi General Hospital, Hualien, Taiwan;

[7] Kaohsiung Medical University Chung-Ho Hospital, Kaohsiung, Taiwan;

[8] Taichung Veterans General Hospital, Taichung, Taiwan;

[9] Chi Mei Medical Center, Tainan City, Taiwan.

[10] Chung Shan Medical University Hospital, Taichung, Taiwan;

[11] Kaohsiung Veterans General Hospital, Kaohsiung, Taiwan;

[12] National Cheng Kung University Hospital, Tainan City, Taiwan

[1]三軍總醫院內科部風濕免疫科;[2]國立臺灣大學醫學院附設醫院內科部風濕免疫科;[3]長庚醫療財團法人林口長庚紀念醫院內科部風濕過敏免疫科;[4]臺北榮民總醫院內科部過敏免疫風濕科;[5]振興醫療財團法人振興醫院內科部過敏免疫風濕科;[6]佛教慈濟醫療財團法人花蓮慈濟醫院內科系風濕免疫科;[7]高雄醫學大學附設中和紀念醫院內科部過敏免疫風濕內科;[8]臺中榮民總醫院內科部過敏免疫風濕科;[9]奇美醫院風濕免疫科;[10]中山醫學大學附設醫院內科部過敏免疫風濕科;[11]高雄榮民總醫院內科部過敏免疫風濕科;[12]國立成功大學醫學院附設醫院內科部過敏免疫風濕科

Background

Ankylosing spondylitis (AS) is a common inflammatory rheumatic disease affecting the spine, peripheral joints, and entheses.[1] Adalimumab (ADA) is approved for active AS in Taiwan.[2] But, real-world evidence on efficacy and safety of ADA in patients with AS in Taiwan is limited. Therefore, the objective of this real-world, prospective, observational study (EAST) (NCT03505892) was to investigate clinical response to ADA in patients with active AS in Taiwan.

Methods

Patients with AS, aged ≥20 years, starting ADA therapy, who gave written informed consent were enrolled from 12 medical centers. Baseline data on demography and concomitant medications were collected. Extra musculoskeletal manifestations (EMM) and clinical data including serum C-reactive protein (CRP, mg/L), erythrocyte sedimentation rate (ESR, mm/h), Bath AS disease activity index (BASDAI), and AS disease activity score (ASDAS) were collected at baseline and Week 12, 24, 36, and 48. Outcome parameters were proportion of patients with an improvement of 50% in BASDAI (BASDAI50), inactive disease (ID, ASDAS<1.3), low disease activity (LDA, ASDAS<2.1), and change in EMM. Treatment-emergent adverse events (TEAEs) were recorded.

Results

Of 88 enrolled patients, 86 were analyzed, and 82 completed the study. Patients were treated with 40 mg ADA every other week, and none had a history of tuberculosis infection. The baseline mean ± standard deviation (SD) of CRP was 28.4±25.2 mg/L and ESR was 40.8±21.8 mm/h. All patients received concomitant medications, commonly: non-steroidal anti-inflammatory drugs (99%), conventional synthetic disease-modifying anti-rheumatic drugs (76%), and corticosteroids (24%). BASDAI and ASDAS improved numerically at Week 48, showing an overall higher response. A decrease of 38.2% from baseline was seen in BASDAI at Week 48. Patients achieving BASDAI50 increased from 79% to 81% from Week 12 to 48. At Week 48, ASDAS-CRP and -ESR, ID, and LDA were improved in 61%, 75%, 42%, and 68% of patients, respectively. A decrease in EMM (peripheral arthritis and uveitis) was noted. The mean±SD swollen joint count at baseline decreased by 4.5±7.0 at Week 12 and 6.3±8.4 at Week 48. A decrease of 2.8±6.7 and 3.6±7.1 at Weeks 12 and 48 was also seen in the mean tender joint count. The mean±SD number of acute anterior uveitis episodes since the last visit decreased by 0.5±2.1 from baseline to Week 12, and gradually decreased to 0 episodes at Week 48. At least one TEAE was reported by 23% of patients, serious AEs by 2% of patients, and there were no deaths. A total of 7% of patients discontinued ADA and 2% of patients discontinued due to TEAE. The most common TEAEs were upper respiratory tract infection (6%) and cough (3%).

Conclusions

This first prospective real-world study in patients with active AS in Taiwan shows that ADA treatment effectively reduced disease activity and improved physical function. ADA was well tolerated with no new safety concerns.

References:

[1] Hwang et al. *Clin Rheumatol* 2021;40:3079–93
[2] Wei et al. *Int J Rheum Dis* 2020;23:7–23

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海報摘要 TCR14

The anti-inflammatory effect of alantolactone in treating psoriasis

土木香內酯於乾癬之抗發炎效果

楊登和[1,2,3,4]、林季千[4]

[1] Division of Rheumatology/Immunology/Allergy, Department of Internal Medicine, Taichung Armed-Forces General Hospital, Taichung, Taiwan

[2] Department of Medical Laboratory Science and Biotechnology, Central Taiwan University of Science and Technology, Taichung, Taiwan

[3] Division of Rheumatology/Immunology/Allergy, Department of Internal Medicine, Tri-Service General Hospital, National Defense Medical Center, Taipei, Taiwan

[4] Institute of Biomedical Science, National Chung-Hsing University, Taichung, Taiwan

Abstract

Background: Psoriasis is an immune-mediated inflammatory disease that affects 2% to 3% of the world population. Alantolactone, a sesquiterpene lactone, was isolated from Inula helenium and Radix inulae, and have several biological effects including antifungal, anthelmintic, antimicrobial, anti-inflammatory, antitrypanosomal, and anti-cancer activities. This study aimed to evaluate the anti-psoriatic potential of alantolactone in vitro and in vivo, and explore underlying mechanisms.

Methods: Mixed cytokines including IL-17A, IL-22, oncostatin M, IL-1α, and TNF-α (M5) were used to simulate HaCaT keratinocytes to establish a psoriatic keratinocyte model. We aexamined the effect of alantolactone on the proliferation and pro-inflammatory cytokines production in active HaCaT keratinocytes. We investigated whether the inhibitory effect of alantolactone on HaCat activation are associated with STAT3, and NF-κB pathway.

Results: Alantolactone suppressed M5 cytokines-induced proliferation and inflammatory responses in keratinocytes in vitro. The anti-inflammatory effect was through inhibition of STAT3 phosphorylation and NF-κB activation in HaCaT keratinocytes.

Conclusion: In response to the hyperproliferation of keratinocytes, alantolactone could reduce the strong inflammation caused by that proliferation. Alantolactone may serve as a potential therapeutic candidate for psoriasis.

海報摘要 TCR15

Bidirectional Association Between Ankylosing Spondylitis and Motor Vehicle Accident: A Nationwide, Population-based, Cohort Study

Chung-Mao Kao[1], Wen-Nan Huang[1, 2, 3], Yi-Hsing Chen[1, 2], Hsin-Hua Chen[1, 2, 4, 5, 6, 7]
高宗楸[1, 2], 陳一銘[1, 2], 黃文男[1], 陳怡行[1], 陳信華[1, 3]
[1] Division of Allergy, Immunology, and Rheumatology, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan
[2] Division of Translational Medicine, Department of Medical Research, Taichung Veterans General Hospital, Taichung, Taiwan
[3] Division of General Internal Medicine, Department of Internal Medicine, Taichung Veterans General Hospital, Taichung, Taiwan
[1] 臺中榮民總醫院 內科部 過敏免疫風濕科
[2] 臺中榮民總醫院 醫學研究部 轉譯醫學研究科
[3] 臺中榮民總醫院 內科部 一般內科

Abstract

Background: Patients with ankylosing spondylitis (AS) suffer from impaired physical activity and are prone to motor vehicle accidents (MVA). Lacking definite instruction regarding relationship between disease evolvement and MVA risk, we investigated fluctuation of MVA risk along disease course in adult AS patients.

Methods: We conducted a population-based cohort study using two databases, with available claims data from 2003 to 2012. We selected 30,911 newly diagnosed AS patients from 2006 to 2012 from NHIRD as AS cases, along with 309,110 gender-, age at index date-, year of index date-matched non-AS controls from LHID 2010. Comparison of MVA risk between both groups was shown as incidence rate ratio (IRR) and log-rank test *p*-value. We examined associations of MVA risk with AS diagnosis, MVA before AS diagnosis, along with frequency of ambulatory visits, comorbidities, uveitis and medications use within one year before index date using Cox regressions.

Results: AS cases experienced significantly more frequent MVA than non-AS controls did (IRR, 1.53; *p*-value, 0.001). IRR was non-significant within two years after AS diagnosis (IRR, 1.13; *p*-value, 0.545) but remained significant more than two years after AS diagnosis (IRR, 2.00; *p*-value, < 0.001)(Figure 1). After Cox regression, MVA risk was positively associated with AS diagnosis, MVA before AS diagnosis and diabetes (Table 1). These remained consistent more than two years after AS diagnosis.

Conclusion: For Taiwanese adult AS patients, MVA risk rises significantly more than two years after AS diagnosis, with risk factors including AS itself, MVA before AS diagnosis and diabetes.

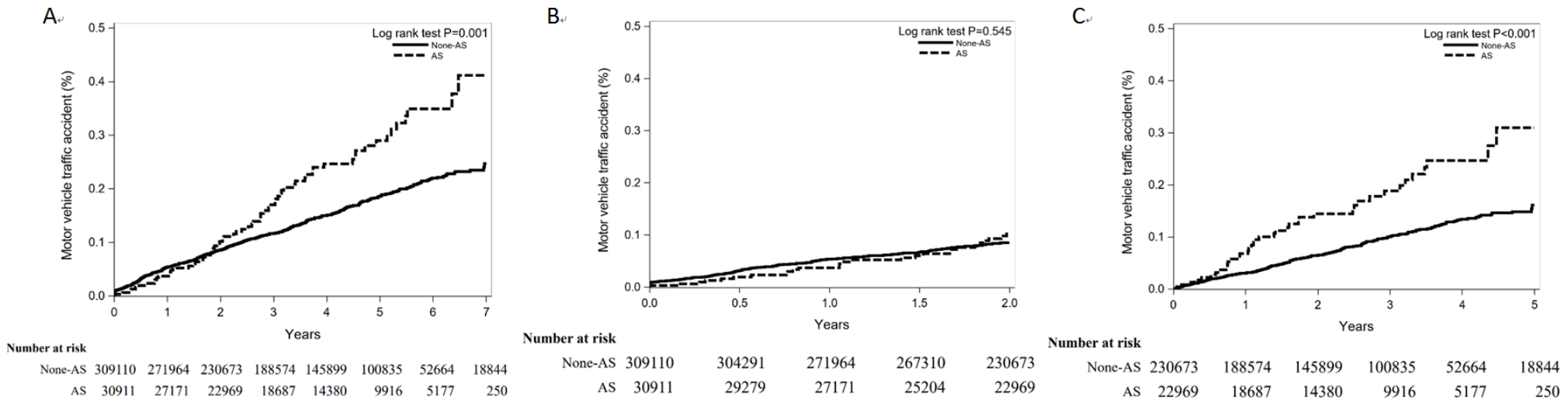

Figure 1. Kaplan-Meier plots of cumulative incidence rate of motor vehicle accident among matched study subjects with and without ankylosing spondylitis. A, during the entire follow-up period. B, period within two years after index date (AS diagnosis for AS cases). C, period more than two years after index date.

Table 1. Risk factors associated with motor vehicle accident in subjects with ankylosing spondylitis participating in the whole follow-up period.

	Univariable Analysis		Multivariable Analysis (Model 1 *)		Multivariable Analysis (Model 2 #)	
	HR (95% CI)	***p*-value**	**Adjusted HR (95% CI)**	***p*-value**	**Adjusted HR (95% CI)**	***p*-value**
Diagnosis of AS	1.49 (1.15–1.92)	0.003	1.31 (1.01–1.72)	0.049	1.31 (1.01–1.72)	0.048
Diagnosis of MVA before index date	9.25 (5.56–15.40)	<0.001	9.05 (5.42–15.11)	<0.001	9.00 (5.39–15.04)	<0.001
Frequency of OPD visits, within one year before index date	1.01 (1.01–1.02)	<0.001	1.01 (0.99–1.01)	0.164	1.00 (0.99–1.01)	0.204
Comorbidities, within one year before index date						
Myocardial infarction	2.96 (0.72–12.16)	0.132	2.49 (0.61–10.25)	0.207	2.47 (0.60–10.15)	0.212
Cerebrovascular diseases	1.18 (0.57–2.43)	0.656	0.91 (0.44–1.89)	0.798	0.90 (0.44–1.88)	0.786
Chronic obstructive pulmonary disease	1.65 (1.002–2.73)	0.049	1.31 (0.78–2.19)	0.310	1.30 (0.78–2.18)	0.319
Peptic ulcer disease	1.26 (0.78–2.03)	0.351	0.93 (0.56–1.53)	0.772	0.93 (0.56–1.53)	0.759
Mild liver disease	1.75 (1.001–3.05)	0.049	1.38 (0.78–2.45)	0.275	1.37 (0.77–2.43)	0.286
Diabetes mellitus	1.73 (1.16–2.58)	0.007	1.52 (1.01–2.29)	0.046	1.52 (1.01–2.28)	0.047
Anxiety disorders	1.84 (1.17–2.90)	0.009	1.30 (0.79–2.15)	0.307	1.25 (0.75–2.07)	0.395
Depressive disorders	1.82 (0.99–3.31)	0.052	1.06 (0.52–2.16)	0.878	1.00 (0.49–2.05)	0.998
Bipolar disorders	2.06 (0.51–8.28)	0.310	1.18 (0.28–5.01)	0.818	1.15 (0.27–4.84)	0.851
Psychotic disorders	2.48 (1.10–5.56)	0.028	1.82 (0.76–4.37)	0.178	1.81 (0.76–4.33)	0.183
Alcohol-related disorders	2.06 (0.51–8.32)	0.310	1.24 (0.30–5.16)	0.766	1.20 (0.29–4.98)	0.805
Extra-articular manifestations, within one year before index date						
Uveitis	2.15 (0.69–6.71)	0.187	1.49 (0.47–4.77)	0.499	1.50 (0.47–4.79)	0.495

Medications, within one year before index date						
Hypnotics	1.52 (1.20–1.91)	<0.001	1.21 (0.92–1.58)	0.168		
Benzodiazepine related drugs	1.87 (1.34–2.61)	<0.001			1.35 (0.92–1.98)	0.128
Benzodiazepines	1.50 (1.18–1.91)	0.001			1.15 (0.87–1.53)	0.330
Antihistamines	1.09 (0.91–1.30)	0.341	0.93 (0.77–1.13)	0.453	0.93 (0.77–1.13)	0.466
Antidepressants	1.62 (1.13–2.32)	0.009	1.07 (0.68–1.70)	0.764	1.03 (0.65–1.64)	0.896
Antipsychotics	1.43 (1.04–1.97)	0.028	1.05 (0.73–1.52)	0.796	1.04 (0.72–1.51)	0.827
Corticosteroids	1.30 (1.04–1.62)	0.021	1.14 (0.90–1.46)	0.278	1.14 (0.90–1.45)	0.281
Akaike information criterion			6484.8		6485.1	

A *p*-value < 0.05 is considered statistically significant. AS, ankylosing spondylitis. CI, confidence interval. HR, hazard ratio. MVA, motor vehicle accident. OPD, outpatient department.

***** Model without adjustment for the impact of respective hypnotics.

Model with adjustment for the impact of respective hypnotics.

海報摘要 TCR16

IgA vasculitis with gastrointestinal tract and renal involvement in a man with HLA-B27 positive ankylosing spondylitis

沈品佑(Ping-You Shen)[1]、蘇勤方(Chin-Fang Su)[2]

1 Department of Internal Medicine, Taipei Medical University-Shuang Ho Hospital, Ministry of Health and Welfare

2 Division of Allergy, Immunology, Rheumatology, Department of Internal Medicine, Taipei Medical University-Shuang Ho Hospital, Ministry of Health and Welfare

衛生福利部雙和醫院

Background:

IgA vasculitis, also known as Henoch-Schonlein purpura (HSP), is a systemic disease caused by the deposition of immune complexes containing the antibody immunoglobulin A (IgA). It can affect multiple organs, including the skin, joints, gastrointestinal (GI) tract, and kidneys. The association between IgA nephropathy and seronegative spondyloarthritis has been extensively documented in numerous articles. However, the association between IgA vasculitis and seronegative spondyloarthritis has only been mentioned in a few case reports.

Case presentation:

A 40-year-old man presented to the emergency department with 2-day history of epigastric pain and non-blanchable rash over bilateral lower limb and abdomen (Figure 1). Laboratory examinations revealed elevated levels of C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), immunoglobulin A (IgA), microscopic hematuria and proteinuria. Abdominal CT found enteritis and incidental finding of bilateral sacroiliitis. He was found to be positive for HLA-B27. The skin biopsy of the purpura showed leukocytoclastic vasculitis (Figure 2). The diagnosis of HLA-B27 positive ankylosing spondylitis with IgA vasculitis was made. The symptoms improved after treatment with steroids, Cyclosporin, and Valsartan.

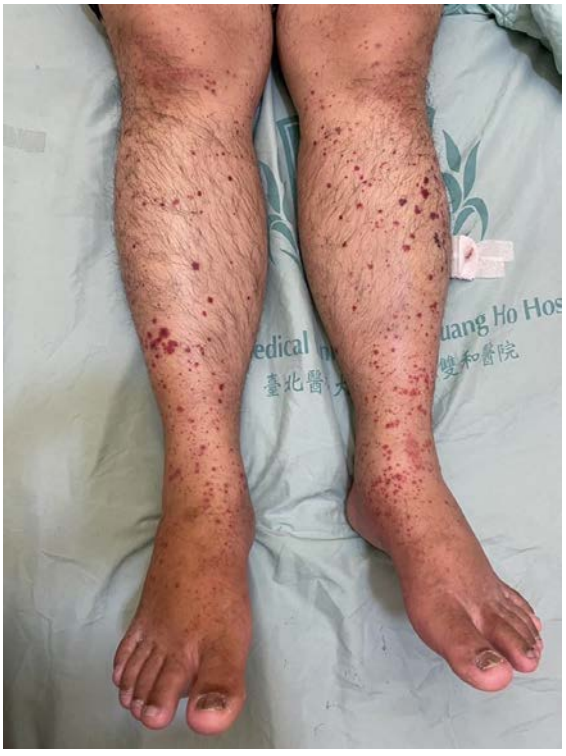

Figure 1: non-blanchable rash

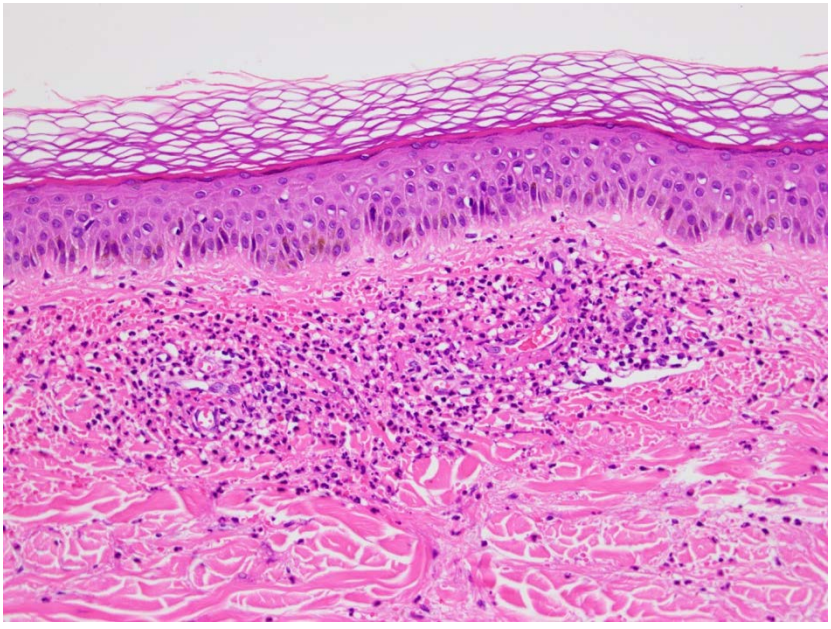

Figure 2: skin biopsy showed leukocytoclastic vasculitis

Conclusion:

We report a rare case of IgA vasculitis in a patient with HLA-B27 positive ankylosing spondylitis and review other similar articles. The mechanism of IgA vasculitis with nephritis may share the same pathogenesis as IgA nephropathy.

Keyword:

IgA vasculitis, ankylosing spondylitis, HLA-B27