for a diagnosis of CTD-ILD was 500 mg/L, and the sensitivity and specificity were 82.0% and 89.1%, respectively. The area under the curve (AUC) was 0.877. By multivariate analysis, we found only the reduced DLCOsb%, and elevated serum KL-6

Abstract AB1226 – Table 1. single factor and multifactor analysis of the risk factors of ILD

Variables	Univariate analysis		Multivariate regression analysis	
	(OR 95% CI)	P	(OR 95% CI)	P
Age	0.956	(0.924, 0.988)	0.008	
VC%	1.051	(1.018, 1.084)	0.002	
FVC%	1.030	(1.004, 1.057)	0.022	
FEV1%	1.032	(1.004, 1.062)	0.026	
TLCOsb%	1.081	(1.042, 1.120)	0.000	1.097 (1.031, 1.168) 0.004
KL-6	0.998	(0.997, 0.999)	0.000	0.997 (0.996, 0.999) 0.000

Conclusions: The serum KL-6 is a valuable biomarker for CTD-ILD diagnosis and even as a predictive factor could be used to identify the clinical development of ILD.

Disclosure of Interest: None declared

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AB1227 INFLAMMATORY FINDINGS ON ULTRASOUND AND MRI CAN PREDICT FUTURE DEVELOPMENT OF RHEUMATOID ARTHRITIS IN PATIENTS WITH SERONEGATIVE, UNDIFFERENTIATED ARTHRITIS

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Background: The 2010 rheumatoid arthritis (RA) classification criteria has been verified to classify patients early as having RA more efficiently than the 1987 criteria. However, sensitivity of this criteria decreased remarkably in patients whose rheumatoid factor (RF) and anticitrullinated antibodies (ACPA) were both negative. Modern imaging technique including ultrasound (US) and magnetic resonance imaging (MRI) are more sensitive than physical examination for detecting joint inflammation objectively, however, US may offer only slight additional value when assessing patients with positive ACPA and RF. Reliability and value of inflammatory findings detected by US and MRI in seronegative, undifferentiated arthritis (UA) patients are still unclear.

Objectives: To clarify benefits of US and MRI for predicting futuristic diagnosis of RA in UA patients with neither ACPA nor RF.

Methods: Consecutive, untreated, early arthritis patients who underwent both US and contrast enhanced MRI of 22 sites including bilateral wrists, MCP and PIP joints were enrolled. Synovitis and tenosynovitis were defined as inflammatory findings of US and MRI. Concordance between swollen joint counts (SJC) by experienced physician, inflammatory findings of US and MRI were assessed. We defined UA as non-fulfilment of the 2010 RA classification criteria and the clinical diagnosis of RA as the initiation of disease modifying anti-rheumatic drugs.

Results: Seventy one patients were included in the analysis. Fifty eight (82%) were female, the median age was 63 years old, and the mean symptom duration 3 months. Forty eight (67.6%) did not fulfil the 2010 criteria being defined as UA, among which thirty six were seronegative. In all patients, the concordance of detecting inflammation was quite high between MRI and US (κ : 0.67–0.70). In 36 seronegative UA patients, SJC detected by physical examinations were fewer than US or MRI (2.2 vs 3.9, $p < 0.05$) and discrepancy between clinical SJC and inflammatory findings by US/MRI were more frequent in seronegative UA patients (κ : 0.18) compared to the patients who fulfilled the 2010 RA criteria (κ : 0.32). Although only 4 of the seronegative UA patients would have fulfilled the 2010 criteria if inflammation findings by US/MRI were used instead of physical examinations, 21 seronegative UA were diagnosed with clinical RA (sensitivity 19% and specificity 100%). One or more inflammatory arthritis in wrists and MCP joints detected by US or MRI in seronegative patients significantly predicted the development of RA with a good sensitivity of 62% and specificity of 87% (Odds ratio, 10.5).

Conclusions: Our study suggested that both US and MRI inflammation findings are reliable with a good concordance and can be useful as predictor for futuristic development of RA in UA patients without ACPA and RF.

REFERENCES:

- [1] Kaneko Y, et al. *Rheumatology* (Oxford). 2011 Jul;50(7):1268–74.
- [2] Zufferey P, et al. *Joint Bone Spine*. 84(3): 299–303, 2017
- [3] Kawashiri S, et al. *Mod Rheumatol* (2013) 23:36–43
- [4] Hirata A, et al. *Arthritis Care Res* (Hoboken). 2017 Jun;69(6):801–806.

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AB1228 SONOELASTOGRAPHY OF QUADRICEPS IS MORE ACCURACY THAN GRIP STRENGTH TO PREDICT LOW MUSCLE MASS

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Background: Reduced muscle mass had associated with higher mortality. So it is mandatory for simple techniques to early detection of sarcopenia. However, some patients with low grip strength had normal muscle mass, especially those with rheumatoid arthritis.

Objectives: Our objective was to examine the validity of sonoelastography to predict sarcopenia in osteoporotic patients.

Methods: We conducted an observational study in Kaohsiung Chang Gung Memorial Hospital. Low muscle mass was determined using a dual-energy X-ray absorptiometry. Sonoelastography was performed over mid thigh over quadriceps muscle. We measure grip strength and hardness and elastography ratio of quadriceps over subcutaneous fat tissue. Logistical regression was used to find the factors to predict low muscle mass. While ROC analysis was used to find best cut-off point.

Results: A total 122 (68 low muscle mass, 54 normal muscle mass) patients were enrolled. The mean age was 79.26±6.77 years in low muscle mass group and 74.7±13.49 in normal muscle mass group ($p=0.017$). Most patients (86.9%) were women. Sonoelastography showed low muscle mass patients had more soft than normal muscle mass patients, furthermore the elastography ratio of quadriceps over subcutaneous tissue was lower than normal muscle mass patients. Using logistical regression, grip strength, sex and age cannot be used to predict low muscle mass, while the hardness and ratio had statistically significant to predict low muscle mass ($p=0.001$). When the cut points determined by receiver operating characteristic (ROC) curve analysis were applied, The best cut-point of hardness was 64.79% (sensitivity, 0.741; 1-specificity, 0.147), while the best cut-point of quadriceps over subcutaneous tissue was 0.81 (sensitivity, 0.815; 1-specificity, 0.118).

Abstract AB1228 – Table 1

	Regression coefficient	S.E.	P value	OR
Gender	1.976	1.063	0.063	7.216 (0.899–57.939)
Age	0.043	0.041	0.297	1.043 (0.963–1.132)
Hardness	−4.015	0.897	0.001	0.018 (0.003–0.105)
Ratio	−3.927	0.856	0.001	0.019 (0.004–0.105)
Grip strength	0.218	0.640	0.734	1.243 (0.355–4.356)

Conclusions: Our findings indicate that sonoelastography is more accurate to predict low muscle mass. The measurement include quadriceps over subcutaneous tissue and hardness of the quadriceps. Although, grip strength is less expensive for evaluation of muscular weakness, from this findings, it is not a reliable method for evaluation of low muscle mass. The possible reason is that sarcopenia initial occur at thigh muscle and then spread up to upper limb. So grip strength is not a accurate method to screen sarcopenia.

REFERENCE:

- [1] Cruz-Jentoft AJ, Baeyens JP, Bauer JM, Boirie Y, Cederholm T, Landi F, Martin FC, Michel JP, Rolland Y, Schneider SM, et al: Sarcopenia: European consensus on definition and diagnosis: Report of the European Working Group on Sarcopenia in Older People. *Age and ageing* 2010, 39 (4):412–423.

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