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- [1] Scher, et al. Nat Rev Rheum 2019 In Press.

Table. Multivariable HRs for the risk for PsA among patients with psoriasis.

	All*	Women	Men
Age	0.99 (0.99-1.00)	1.00 (0.99-1.00)	0.99 (0.99-0.99)
Male Sex	1.09 (1.02-1.16)		
Obesity	1.31 (1.16-1.48)	1.30 (1.11-1.53)	1.35 (1.12-1.64)
Depression	1.19 (1.06-1.33)	1.19 (1.04-1.37)	1.23 (1.01-1.49)
Fatigue	1.61 (1.43-1.81)	1.50 (1.30-1.75)	1.91 (1.59-2.29)
Anemia	1.48 (1.29-1.70)	1.62 (1.37-1.92)	
Uveitis	2.48 (1.41-4.38)	2.90 (1.38-6.08)	
Sepsis	1.64 (1.07-2.52)	2.39 (1.41-4.03)	
Liver Disease	1.31 (1.06-1.62)		1.40 (1.04-1.88)
Hidradenitis Suppurativa	2.16 (1.16-4.02)		4.04 (1.68-9.74)
Hypertension	1.16 (1.07-1.26)		1.18 (1.05-1.33)
Osteomyelitis	2.17 (1.29-3.67)		2.70 (1.38-5.29)
Celiac Disease	1.98 (1.10-3.58)		
HIV	0.24 (0.06-0.96)		
Any infection	1.13 (1.04-1.22)		
Restless Leg Syndrome		1.55 (1.06-2.28)	
Salmonella		9.30 (1.30-66.27)	
Cellulitis		1.36 (1.09-1.70)	
Diabetes		1.23 (1.06-1.43)	
Irritable Bowel Syndrome			1.62 (1.00-2.62)
Venous Thromboembolism			1.58 (1.04-2.43)
Encephalitis			4.40 (1.10-17.62)
Gangrene			4.33 (1.05-17.85)

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“Rheumatoid arthritis – looking before, looking forward!”

OP0116

JOINT EROSIONS VISIBLE ON ULTRASOUND PREDICT ARTHRITIS DEVELOPMENT IN PATIENTS WITH ACPA AND MUSCULOSKELETAL PAIN BUT NO SWOLLEN JOINTS

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Background: Anti-citrullinated protein antibodies (ACPA) are associated with an increased risk of developing rheumatoid arthritis (RA), and in particular erosive

disease. Detection of joint inflammation prior to clinical synovitis may improve treatment decisions in early disease.

Objectives: We sought to determine the value of ultrasound (US) to predict arthritis development among ACPA positive patients with musculoskeletal (MSK) pain.

Methods: We prospectively followed 82 ACPA-positive patients with MSK pain but without arthritis upon baseline clinical examination (mean follow-up 68 months, range 23-91). US at baseline assessed joint erosions, synovial hypertrophy in grey scale (GS), and inflammatory activity judged by power Doppler (PD) in 36 small joints in hands and feet. We used a ProFocus system (BK Medical) with pulse repetition frequency 0.8 kHz for PD grading. The US and PD results were blinded to patients and treating rheumatologists during the initial 3 years. US findings among patients were compared to 100 age-matched healthy blood donors. Arthritis development during follow-up of patients was determined by clinical examination by an experienced rheumatologist. Associations between baseline US findings and arthritis development were tested by Cox regression analysis with adjustment for sex, age, symptom duration, smoking habits, erythrocyte sedimentation rate, C-reactive protein level, rheumatoid factor, and ACPA levels.

Results: Significantly more patient joints had synovial hypertrophy (GS score >0) compared to control joints in metacarpophalangeal (MCP) (5.2% vs. 2.5%; $p<0.001$) and proximal interphalangeal (PIP) joints 2-5 (6.6 vs. 1.5%; $p<0.001$). In contrast, metatarsophalangeal (MTP) joints 1-5 of the controls were more often scored GS>0 compared to patient joints (49% vs. 24%; $p<0.001$). Positive PD (>0) occurred significantly more often in patient joints compared to the controls in all joint areas ($p<0.05$). At patient level, the mean sum score of all investigated joints was higher among patients than controls, regarding GS as well as PD ($p<0.001$ for both). 13 patients (16%), but none of the controls, had erosions detected on US ($p<0.001$). During follow-up of patients, 39 (48%) developed arthritis after median 25 weeks (range 5-302). Arthritis development was significantly more common among patients with baseline US erosions (10 out of 13; 77%) compared to those without (29 out of 69; 42%; $p=0.032$). This remained significant also in Cox regression adjusting for potential confounders (Hazard ratio =4.2, 95% CI 1.7-10.4, $p=0.002$). Out of the 13 erosions detected on US, 4 could be identified on conventional radiographs. Neither GS nor PD findings were significantly associated with arthritis development.

Conclusion: Arthritis-related US findings are more common among patients at increased risk of RA compared to healthy controls, but with site-specific differences. Erosions detected on US predicted arthritis development. Thus, US assessment of erosions improves risk-stratification of ACPA-positive patients without swollen joints, and potentially identifies patients eligible for very early pharmacotherapy.

Figure 1. Survival plot illustrating progression to arthritis during follow-up in relation to the presence of ultrasound erosions at baseline among patients with anti-citrullinated protein antibodies and musculoskeletal pain.

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