Conclusion: The results of this study confirm that Vimentin is one of the antigenic targets of anti-CarP antibodies present in the serum of RA patients. The presence of carbamylated proteins and vimentin in endothelial cells suggests that anti-Car-Vim could bind the modified protein and determine endothelial activation and subsequent endothelial dysfunction.

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Figure 1. Immunofluorescence on endothelial cell line EA.hy 926 demonstrating the presence of Vimentin (A) and Carbamylated (B) proteins.

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AB0138 INDIVIDUALS WITH ACPA POSITIVE RA PRESENTING INITIALLY WITH PALINDROMIC SYMPTOMS ARE SIGNIFICANTLY LESS LIKELY TO BE RHEUMATOID FACTOR POSITIVE THAN CLASSICAL ACPA POSITIVE RA; COULD THE AETIOPATHOGENESIS DIFFER BETWEEN THESE TWO DISTINCT TYPES OF ACPA POSITIVE RA?

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Background: It remains unclear whether ACPA positive RA presenting initially with palindromic symptoms (PRA) has the same underlying pathophysiology as ACPA positive RA presenting without palindromic symptoms (classical ACPA positive RA). The lung is an initiating site in RA development and rheumatoid factor (RF) is generated within bronchial associated lung tissue (1). RF in combination with ACPA immune complexes can induce TNF α from joint macrophages and potentially induce synovitis (2). Unsurprisingly a positive RF is a risk factor for RA development. Alternatively, palindromic rheumatism in the absence of RA occurs commonly in RF negative individuals (58%) (3). Therefore this form of explosive synovitis often occurs independently of RF, but is commonly associated with ACPA positivity (56%) (3).

Objectives: To identify whether classical ACPA positive RA differs in terms of RF positivity compared to ACPA positive PRA.

Methods: A retrospective case note observational study was undertaken to identify ACPA positive RA patients with or without a palindromic onset. All patients fulfilled the RA 2010 EULAR/ACR classification criteria (4). Patients were stratified for a history of smoking. RF was measured with Tina-quant Rheumatoid Factors II Test System, by Roche Diagnostics Corporation at the time of diagnosis. A value of < 14 IU/ml was considered as negative, weakly positive (14-42 IU/ml) and strongly positive (>42.1 IU/ml) as per EULAR/ACR guidelines (4).

Results: 99 classical ACPA positive RA and 35 ACPA positive PRA were identified. The median RF for PRA was significantly lower than the non-PR onset RA group (25 vs 86 IU/mL, $p = 0.001$). Comparing classical ACPA positive RA with ACPA positive PRA revealed 8/99 (8%) vs. 8/35 (23%) to be RF negative, 23/99 (23%) vs. 11/35 (31%) to be RF weakly positive and 68/99 (69%) vs. 16/35 (46%) to be strongly RF positive. Classical RA patients were significantly less likely to be RF negative, odds ratio 0.25 (95%CI 0.09-0.73), $P=0.01$. RA patients were significantly more likely to be strongly RF positive OR 4.32 (1.88-9.89), $P=0.0005$. Classical ACPA RA patients were more likely to be smokers than ACPA PRA patients 60/99 (61%) vs. 18/35 (51%), however this was not significant OR 1.48 (95 CI 0.68-3.2), $p=0.99$. Classical ACPA RA patients accumulated a greater number of pack years, median of 17 vs 5, however, the difference was not significant $p=0.12$.

Conclusion: The majority of ACPA RA patients presenting with palindromic symptoms have either a negative or weakly positive RF (54%). This contrasts with classical ACPA RA (31%) and suggests that a strongly positive RF is more important in the pathogenesis of classical ACPA RA than ACPA PRA. We suggest that a strongly positive RF and palindromic rheumatism are likely to be independent risk factors for ACPA positive RA.

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AB0140 EFFECT OF THE CO-TREATMENT WITH BACTERICIDAL/PERMEABILITY-INCREASING PROTEIN AND HYALURONIC ACID IN AN IN VIVO MODEL OF ARTHRITIS

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Background: Bactericidal/permeability-increasing protein (BPI) is an antibacterial, anti-inflammatory and antiangiogenic glycoprotein which has been detected in synovial fluid of patients with different arthritis [1].

Objectives: To investigate the effect of BPI alone or in combination with hyaluronic acid (HA) in a mouse model of collagen-induced arthritis (CIA).

Methods: CIA was induced in C57Bl/6 mice ($n=12$ per condition) by immunization with type II collagen/complete Freund's adjuvant emulsion at days 0 and 21 [2]. Development and severity of arthritis were monitored by measuring paw swelling with a caliper and scored (0-5) every 2 days. Arthritic mice (paw score=2) were intraperitoneally injected with 200 μ l of BPI (50 μ g/ml) in PBS in the presence or absence of HA (0.02%). Treatment and arthritis evaluation were carried out twice a week for 2 months. Untreated mice or animals that received HA alone (0.02%) were used as controls. At the experiment endpoints, mice were sacrificed to collect paw and blood samples. Hind paws were processed for histological analysis to assess inflammation, pannus formation, cartilage damage and bone resorption in ankle joints (score 0-5). CXCL1, TNF, IL-6, IL-1 β and VEGF serum levels were determined by ELISA.

Results: All mice reached an arthritis score of 2 after 28-33 days and showed a progressive worsening of clinical signs that peaked at day 49-56, and continued during the entire follow-up period only in control groups. At the end of the experiment, hind paw swelling and scores were lower in BPI-mice (paw thickness=4.76 $\pm$ 0.33 mm; score=4.5 $\pm$ 0.5) than in untreated mice (paw thickness=6.39 $\pm$ 0.95 mm; score=5). Histological analysis revealed leukocyte infiltration (score 3.00 $\pm$ 1.73), synovial proliferation (score 3.50 $\pm$ 0.71), cartilage damage (score 2.50 $\pm$ 0.71) and mild bone resorption (score 1.50 $\pm$ 1.71) in ankle joints of untreated controls. All of these histological changes were decreased (50–80%) in the group that received BPI. CIA induction led to high levels of CXCL1 (834.08 $\pm$ 68.8 pg/ml), TNF (277.72 $\pm$ 15.24 pg/ml), IL-6 (376.04 $\pm$ 46.33 pg/ml), IL-1 β (656.80 $\pm$ 45.6 pg/ml), and VEGF (347.48 $\pm$ 75.58 pg/ml) which were reduced with BPI treatment by 1.9, 14.6, 1.8, 2.9 and 2.7 fold, respectively. Animals injected with HA alone displayed slight improvement of all parameters evaluated but the differences were not significant. The combined use of BPI and HA showed paw swelling (3.65 $\pm$ 0.37 mm), arthritic score (0.67 $\pm$ 0.75) and histological scores for pannus formation (0.4 $\pm$ 0.55), inflammation (0.20 $\pm$ 0.45), cartilage damage (0.0 $\pm$ 0.0) and bone resorption (0.0 $\pm$ 0.0) more remarkably reduced than their separate use. In addition, the lowest levels of CXCL1 (11.44 $\pm$ 1.31 pg/ml), TNF (4.46 $\pm$ 2.23 pg/ml), IL-6 (129.30 $\pm$ 14.25 pg/ml), IL-1 β (81.58 $\pm$ 7.64 pg/ml), and VEGF (107.80 $\pm$ 32.64 pg/ml) were observed in serum of mice co-injected with BPI and HA.

Conclusion: This study shows that BPI attenuates progression of CIA in mice, and this effect is greatly enhanced by co-administration of HA. The combined use of BPI and HA represents an interesting perspective for a new potential intervention in the treatment of arthritis.

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