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-CarPvim could bind the modified protein and determine endothelial activation and subsequent endothelial dysfunction.

REFERENCE


Disclosure of Interests: None declared


AB0140

EFFECT OF THE CO-TREATMENT WITH BACTERIAL/PERMEABILITY-PRODUCING PROTEIN AND HYALURONIC ACID IN AN IN VIVO MODEL OF ARTHRITIS

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Background: Bacterial/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/full 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 μl of BPI (50 μg/ml) in PBS in the presence or absence of HA (0.02%). Treatment and arthritis evaluation were carried out twice a week for 2 weeks. 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-1β 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 picked at day 49-56, and continued throughout 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 ±0.33 mm; score=4.5±0.5) than in untreated mice (paw thickness=6.39±0.95 mm; score=5). Histological analysis revealed leukocyte infiltration (score 3.00±1.73), synovial proliferation (score 3.50±0.71), cartilage damage (score 2.50±0.71) and mild bone resorption (score 1.50±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 (634.08±68.8 pg/ml), TNF (277.72 ±15.24 pg/ml), IL-6 (376.04±46.33 pg/ml), IL-1β (566.80±45.6 pg/ml), and VEGF (347.48±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±0.37 mm), arthritic score (0.67±0.75) and histological scores for pannus formation (0.4±0.55), inflammation (0.20±0.45), cartilage damage (0.02±0.0) and bone resorption (0.02±0.0) much remarkably reduced than their separate use. In addition, the lowest levels of CXCL1 (11.44±1.31 pg/ml), TNF (4.46±2.23 pg/ml), IL-6 (129.30±14.25 pg/ml), IL-1β (81.58±7.64 pg/ml), and VEGF (107.80±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.

REFERENCES
