

Source: Okayama University (JAPAN), Public Relations and Information Strategy

For immediate release: 27 February 2019

Okayama University research: Promising biomarker for vascular disease relapse revealed

(Okayama, 27 February) **Researchers at Okayama University report in the journal *Arthritis & Rheumatology* that monitoring a particular antigen can be used for predicting relapse of the vascular disease AAV.**

Antibodies are molecules produced by a human's immune system to counteract bacteria and viruses. When a bacterial or viral pathogenic molecule (a so-called antigen) is detected, an antibody neutralizes it by binding to it. However, autoantibodies are sometimes produced against to our own protein and cause autoimmune diseases. For the autoantibody known as ANCA (antineutrophil cytoplasmic antibody) cause ANCA-associated vasculitis (AAV), at least two antigens exist: proteinase 3 and myeloperoxidase (abbreviated as PR3 and MPO, respectively). Assistant Professor Haruki Watanabe and Associate Professor Ken-Ei Sada from Okayama University and colleagues have now investigated whether MPO-ANCA can be used as a biomarker for the relapse of AAV, a blood-vessel inflammation disease. The researchers' findings suggest that monitoring MPO-ANCA is useful for predicting relapse in patients with AAV.

The scientists looked at data for 271 MPO-ANCA-positive patients who had achieved remission (disappearance of the signs and symptoms) of AAV during 6 months after therapy was started. Levels of MPO-ANCA were measured at several times in a 2-year period. Assistant Professor Haruki Watanabe and Associate Professor Ken-Ei Sada from Okayama University and colleagues found that for 72% of the patients, MPO-ANCA levels decreased to normal within 6 months after therapy began. MPO-ANCA reappeared for 40% of the patients for which there were complete follow-up data; this reappearance was associated with a relapse occurring simultaneously or later. The researchers therefore concluded that reappearance of MPO-ANCA is a promising marker for AAV relapse.

Assistant Professor Haruki Watanabe and Associate Professor Ken-Ei Sada from Okayama University and colleagues found indications that MPO-ANCA reappearance could be particularly useful as a biomarker for relapse of AAV with kidney involvement (renal AAV). Since only 4 patients without renal involvement experienced relapse, a larger study would be necessary to establish any link between MPO-ANCA reappearance and relapse of non-renal AAV.

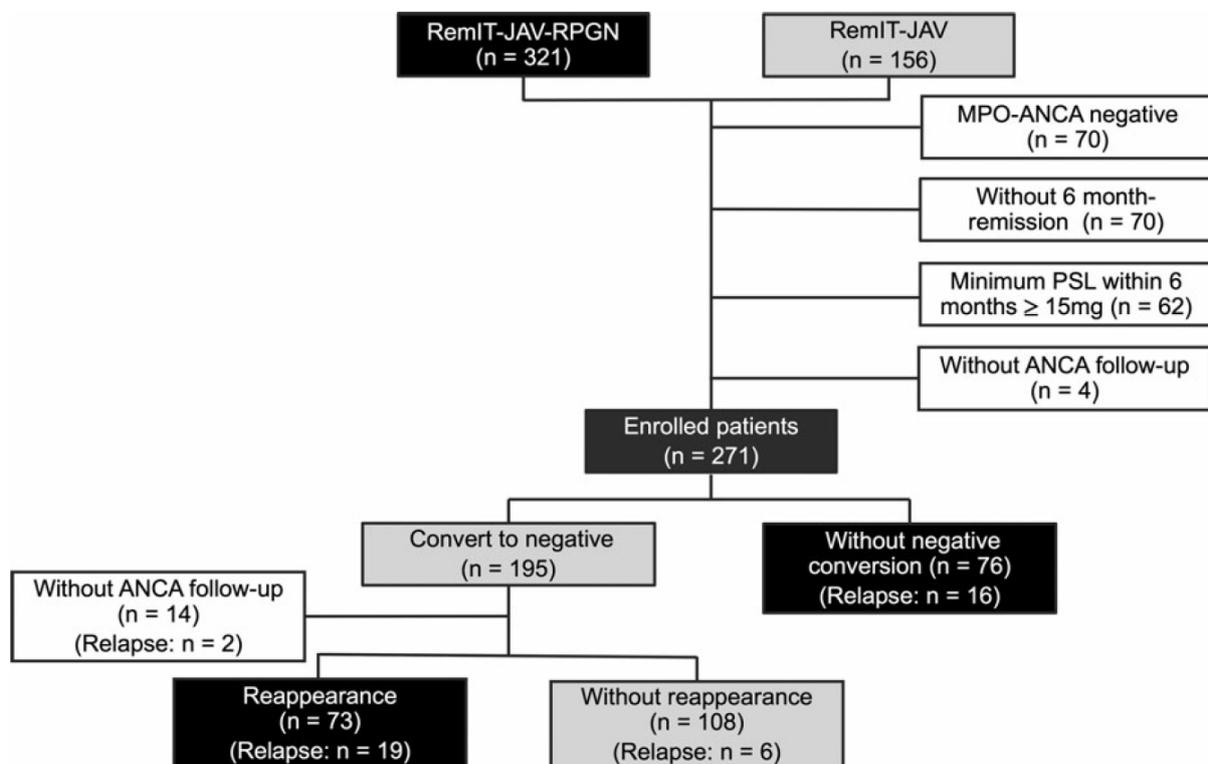
The researchers point out that their study has some limitations: the data were obtained earlier, in the context of other investigations, and different participating institutions used different analytic procedures for qualitatively assessing ANCA content. Nevertheless, the study was the largest so far, and also the first with case-control analysis (based on comparisons of patients with and without the disease relapse). Watanabe and colleagues conclude that for patients recovered from MPO-AAV, “routine MPO-ANCA monitoring should be implemented [to predict possible relapse]”.

Background

Antineutrophil cytoplasmic antibody-associated vasculitis

Antineutrophil cytoplasmic antibody-associated vasculitis (AAV) refers to a set of diseases (granulomatosis with polyangiitis, eosinophilic granulomatosis with polyangiitis and microscopic polyangiitis), the characteristics of which are destruction and inflammation of small blood vessels. Clinical signs vary, and different organs can be affected, including kidneys, stomach, and lungs.

A study by Assistant Professor Haruki Watanabe and Associate Professor Ken-Ei Sada from Okayama University and colleagues has now shown that for patients having had AAV, monitoring the presence of an antigen known as MPO-ANCA should help to predict AAV relapse.



Caption

Characteristics of patients involved in the MPO-ANCA biomarker study.

Reference

Haruki Watanabe, Ken-Ei Sada, Yoshinori Matsumoto, Masayoshi Harigai, Koichi Amano, Hiroaki Dobashi, Shouichi Fujimoto, Joichi Usui, Kunihiro Yamagata, Tatsuya Atsumi, Shogo Banno, Takahiko Sugihara, Yoshihiro Arimura, Seiichi Matsuo, Hirofumi Makino, For Japan Research Committee of the Ministry of Health Labour, Welfare for Intractable Vasculitis (JPVAS) Research Committee of Intractable Renal Disease of the Ministry of Health Labour, Welfare of Japan. Association Between Reappearance of Myeloperoxidase - Antineutrophil Cytoplasmic Antibody and Relapse in Antineutrophil Cytoplasmic Antibody - Associated Vasculitis: Subgroup Analysis of Nationwide Prospective Cohort Studies. *Arthritis & Rheumatology*, 2018 Oct;70(10):1626-1633.

[DOI: 10.1002/art.40538.](https://doi.org/10.1002/art.40538)

Correspondence to

Assistant Professor Haruki Watanabe, M.D.
Department of Medicine and Clinical Science,
Okayama University Graduate School of Medicine,
Dentistry, and Pharmaceutical Sciences, 2-5-1,
Shikata-cho, Kita-ku, Okayama 700-8558, Japan.
E-mail: harukiw@okayama-u.ac.jp



Assistant Professor
Haruki Watanabe



Associate Professor
Ken-Ei Sada

Further information

Okayama University
1-1-1 Tsushima-naka , Kita-ku , Okayama 700-8530, Japan
Public Relations and Information Strategy
E-mail: www-adm@adm.okayama-u.ac.jp
Website: http://www.okayama-u.ac.jp/index_e.html
Okayama Univ. e-Bulletin: <http://www.okayama-u.ac.jp/user/kouhou/ebulletin/>
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Okayama University is one of the largest comprehensive universities in Japan with roots going back to the Medical Training Place sponsored by the Lord of Okayama and established in 1870. Now with 1,300 faculty and 13,000 students, the University offers courses in specialties ranging from medicine and pharmacy to humanities and physical sciences.

Okayama University is located in the heart of Japan approximately 3 hours west of Tokyo by Shinkansen.

Website: http://www.okayama-u.ac.jp/index_e.html



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Hirofumi Makino, M.D., Ph.D.
President, Okayama University

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