Development of a Diagnostic Test to Differentiate Bradykinin with Normal C1 Inhibitor from Histamine-Mediated Angioedema

Tech ID: 29511 / UC Case 2018-181-0

BACKGROUND

Angioedema is a non-itchy, pale swelling of subcutaneous or submucosal tissue that tends to recur chronically and can become life-threatening if the swelling occurs in the upper airways or can be very painful if it occurs in the gastrointestinal tract. Angioedema presenting together with urticarial (hives) usually responds well to antihistamines and corticosteroids, whereas angioedema without urticarial (hives) is frequently resistant to such therapy but may respond to a C1 esterase inhibitor, tranexamic acid, or both therapies that can reduce bradykinin generation.

Differentiating bradykinin-from histamine-mediated angioedema is of critical importance to prevent morbidity and mortality. The ability to diagnose bradykinin-mediated angioedema with normal C1 inhibitor (C1INH), however has been severely limited by the lack of any available diagnostic test. Current genetic tests only identify a tiny fraction of the affected patients. Due to the lack of a known biomarker or assay, many patients without bradykinin-mediated angioedema are treated with unnecessary medications (often approaching $1,000,000/year or more in costs).

TECHNOLOGY DESCRIPTION

Researchers at UC San Diego have developed an assay which can identify those patients who have bradykinin mediated angioedema and to differentiate them from those who have histamine mediated angioedema. The test takes approx. 30 mins. Plasma kallikrein activity is stimulated ex vivo with sub-max doses of a contact system activator to distinguish bradykinin from histamine-mediated angioedema.

APPLICATIONS

The current invention is a diagnostic test for the identification of patients with bradykinin-mediated angioedema compared with histamine-mediated angioedema. It may also help to identify patients who may benefit from bradykinin-targeted therapy.

ADVANTAGES

The current assay allows clinicians to clearly separate patients with bradykinin-mediated from histamine-mediated angioedema. Furthermore, the invention provides a simple assay that can be standardized and adapted for a clinical laboratory. The current situation is that there are no tests or biomarkers that can identify the large majority of patients with bradykinin-mediated angioedema.

STATE OF DEVELOPMENT

The assay is fully developed and has been used in a study of 154 subjects from our angioedema center at UC San Diego.

INTELLECTUAL PROPERTY INFO

A provisional patent has been submitted and the technology is available for license.

CONTACT

University of California, San Diego
Office of Innovation and Commercialization
innovation@ucsd.edu
tel: 858.534.5815.

OTHER INFORMATION

KEYWORDS

Angioedema, bradykinin, diagnostic hereditary angioedema with normal C1 inhibitor, idiopathic non-histaminergic angioedema, histamine, kallikrein, biomarker; diagnosis, high-molecular weight kininogen

CATEGORIZED AS

- **Medical**
  - Diagnostics
  - Other

RELATED CASES

2018-181-0

RELATED MATERIALS

▶ Lara-Marquez ML, Christiansen SC, Riedl MA, Herschbach J, Zuraw BL. Threshold-Stimulated Kallikrein Activity Distinguishes Bradykinin- From Histamine-Mediated Angioedema. Clin Exp Allergy. 2018 Jun 29. doi: 10.1111/cea.13219. [Epub ahead of print] - 06/29/2018

PATENT STATUS

Patent Pending

University of California, San Diego
Office of Innovation and Commercialization
9500 Gilman Drive, MC 0910, ,
La Jolla,CA 92093-0910

Tel: 858.534.5815
innovation@ucsd.edu
https://innovation.ucsd.edu
Fax: 858.534.7345

© 2018, The Regents of the University of California
Terms of use
Privacy Notice