
Medical Policy



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Category: Laboratory/Pathology
***Current Policy Effective Date: 1/1/09**

Title: Bradykinin (Plasma BK) Testing **** Procedure Code(s):**
82286

Description/Background

A kinin is any of various polypeptide hormones that are formed locally in the tissues and cause dilation of blood vessels and contraction of smooth muscle. Bradykinin is defined as a biologically active polypeptide consisting of nine amino acids that forms from a blood plasma globulin. It mediates the inflammatory response, increases vasodilation by increasing vascular permeability and causes contraction of smooth muscle. It is one of the physiologic mediators of an anaphylactic reaction.

Bradykinin is a potent pain-eliciting chemical produced wherever body tissue is damaged. It triggers the production of other chemicals such as histamines and prostaglandins. Some researchers believe that bradykinin attaches to pain receptors, causing them to send impulses to the central nervous system. During exercise, bradykinin may be released in response to the increased acidity that occurs in active muscle, causing vasodilation in the tissues and promoting sweating. It may also contribute to the inflammatory response, particularly in the early stages. Like histamine, it is released from venules rather than arterioles.

A pathogenic role for bradykinin has been suggested in diseases ranging from asthma to hereditary angioedema, as well as other kinds of swelling disorders and allergic-type diseases. It is measured in body fluids by techniques including immunoassay, capillary electrophoresis, chromatography and mass-spectrometry.

*See policy history boxes for any previous effective dates if applicable

**See section "CPT/HCPCS Level II Codes and Description" for code nomenclature and for additional code(s) if applicable.

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BCBSM/BCN Medical Policies are developed to provide general information about Blue Cross Blue Shield and Blue Care Network of Michigan medical policies. This policy is not intended to offer coverage or medical advice. This policy may be updated and is therefore subject to change.

Bradykinin (Plasma BK) Testing.CS.010109.EI.RET

The test may be used to measure vasoactive processes or monitoring inflammatory processes. Due to its rather limited half-life, only a by-product of the molecule can be measured. There are a few articles where it was measured in blood products or in the blood of patients on bypass machines to predict or avoid vasoactive effects that might clinically affect the patient. It has not been shown to be a clinically useful diagnostic assay.

Defects of the kinin-kallikrein system (of which bradykinin is a part) in diseases are not generally recognized. The kinin-kallikrein system is the subject of much research due to its relationship to the inflammation and blood pressure systems.

CPT/HCPCS Level II Codes and Description *(Note: The inclusion of a code in this list is not a guarantee of coverage. Please refer to the medical policy statement to determine the status of a given procedure)*

Established codes:

N/A

Other codes (investigational, not medically necessary, etc.):

82286 Bradykinin

Diagnoses/Medical Conditions

N/A

Medical Policy Statement

The measurement of plasma bradykinin does not provide any clinically relevant information in the diagnosis or treatment of any condition over available tests or procedures. The test is therefore experimental/investigational in the diagnosis or treatment of patients as it has not been shown to be a clinically useful diagnostic assay.

Rationale

There are no published articles relative to the general utility of measuring plasma bradykinin levels. There are a few articles documenting the measurement of serum bradykinin in blood products. One article studied the measurement of serum bradykinin levels in patients who are on bypass machines in order to predict or avoid vasoactive effects that could clinically affect the patient.

Varying plasma bradykinin levels during certain surgical procedures appear to be an interesting finding in the course of studying physiologic changes that may result in falling

blood pressures. However, it is not clear at this point what role plasma bradykinin may ultimately play in the patient management.

Medical Policy Position Summary (Non-clinical summary statement for customer use)

Bradykinin is found in plasma (the clear yellowish fluid component of blood) and many other tissues and fluids. It is important in the body's inflammatory response. A defect in bradykinin has been suggested in diseases ranging from asthma and other kinds of swelling disorders and allergic diseases. It is measured in body fluids using a variety of techniques.

The test may be used to measure processes that cause constriction or opening of blood vessels or to monitor inflammatory processes. Due to its short lifetime, it is only possible to measure its byproduct. Measuring serum bradykinin levels has not yielded any clinically useful results. Therefore, this test has been determined to be experimental/investigational.

Inclusionary and Exclusionary Guidelines (Clinically based guidelines that may support individual consideration and pre-authorization decisions)

N/A

Related Policies

N/A

Medicare Information

Medicare has no local or national Medicare policy on this topic. WPS Medicare lists this test as a statutory exclusion. Ingenix shows this code as payable under the Clinical Diagnostic Laboratory Services section.

(The above Medicare information is current as of the review date for this policy. However, the coverage issues and policies maintained by the Centers for Medicare & Medicaid Services [CMS, formerly HCFA] are updated and/or revised periodically. Therefore, the most current CMS information may not be contained in this document. For the most current information, the reader should contact an official Medicare source.)

References

- Cugno, Massimo, MD, et al., "Increase of Bradykinin in Plasma of Patients Undergoing Cardiopulmonary Bypass; The Importance of Lung Exclusion," *Chest*, Volume 120, 2001, pp. 1776-1782.

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- Cugno, Massimo, MD, et al., "Plasma bradykinin levels in human chronic congestive heart failure," *Clinical Science*, Volume 99, 2000, pp. 461–466.
- *Dialogues in Cardiovascular Medicine*, "Summaries of Ten Seminal Papers," Volume 6, Number 4, 2001, pp. 258-267.
- *Hayes Search and Summary*, "Autoantibody Testing for Chronic Urticaria," Lansdale, PA: HAYES, Inc., July 15, 2008.
- Khan, Tapan K. and Daniel L. Alkon, "An internally controlled peripheral biomarker for Alzheimer's disease: Erk1 and Erk2 responses to the inflammatory signal bradykinin," *PNAS*, Volume 103, Number 35, August 29, 2006, pp. 13203–13207.
- Kurita, A., et al., "Plasma bradykinin and prostaglandin metabolism and exercise testing in patients with silent myocardial ischemia compared with patients with painful myocardial ischemia," *Jpn Circ J.*, Volume 53, Number 11, 1989, pp. 1466-1471.
- Nickeleit, Volker, MD, et al., "Testing For Polyomavirus Type BK DNA In Plasma To Identify Renal-Allograft Recipients With Viral Nephropathy," *NEJM*, Volume 342, Number 18, May 4, 2000, pp. 1309-1315.
- Zingale, Lorenza C., et al., "Angioedema without urticaria: a large clinical survey," *CMAJ*, Volume 175, Number 9, October 24, 2006, pp. 1065-1070.

The articles reviewed in this research include those obtained in an Internet based literature search for relevant medical references through 9/2/08, the date the research was completed.

Joint BCBSM/BCN Medical Policy History

| Policy Effective Date | BCBSM Signature Date | BCN Signature Date | Comments |
|------------------------------|-----------------------------|---------------------------|---|
| 1/1/09 | 12/1/08 | 10/13/08 | Joint policy established; policy retired as obsolete. |

Next Review: This procedure has been determined to be obsolete and is no longer subject to routine review.

Pre-Consolidation Medical Policy History

| Original Policy Date | Comments |
|-----------------------------|-----------------|
| BCN: N/A | Revised: N/A |
| BCBSM: N/A | Revised: N/A |

BLUE CARE NETWORK BENEFIT COVERAGE POLICY: BRADYKININ (PLASMA BK) TESTING

I. Short Description:

Bradykinin is a biologically active peptide, found in plasma (the clear yellowish fluid component of blood) and many other tissues and fluids and is important in the body's inflammatory response. A defect in bradykinin has been suggested in diseases ranging from asthma to hereditary angioedema (a swelling, similar to hives, but the swelling is beneath the skin rather than on the surface), as well as other kinds of swelling disorders and allergic diseases. It is measured in body fluids using a variety of techniques.

The test may be used to measure processes that cause constriction or dilation of blood vessels or to monitor inflammatory processes. Due to its rather limited half-life, it is only possible to measure the byproduct of the molecule. Measuring serum bradykinin levels has not yielded any clinically useful diagnostic results. Therefore, this test has been determined to be experimental/investigational

II. Coverage Determination:

| | |
|--|---|
| Commercial HMO (includes Self-Funded groups unless otherwise specified) | Not covered. |
| BCNA (Medicare Advantage) | May be covered under individual consideration. |
| BCN65 (Medicare Complementary) | Coinsurance covered if primary Medicare covers the service. |
| BlueCaid | Not covered. |

III. Administrative Guidelines: *(for BCNA and BCN65 certificates only)*

- The member's contract must be active at the time the service is rendered.
- The service must be authorized by the member's PCP except for Self-Referral Option (SRO) members seeking Tier 2 coverage.
- Services must be performed by a BCN-contracted provider, if available, except for Self-Referral Option (SRO) members seeking Tier 2 coverage.
- Appropriate copayments will apply.
- CPT - HCPCS codes are used for descriptive purposes only and are not a guarantee of coverage.
- Payment is based on BCN payment rules, individual certificate benefits and certificate riders.

IV. Effective Dates:

JUMP policy effective date: 1/1/09, policy retired as procedure is obsolete.