TEST

Brain natriuretic peptide test

A blood test that helps assess whether heart strain may explain symptoms such as breathlessness

WHAT IT MEASURES
B-type natriuretic peptide released when the heart is stretched

SAMPLE
Blood

FASTING NEEDED?
No

HOW LONG IT TAKES
Usually 5 to 10 minutes

RESULTS IN
Hours to one day; laboratory turnaround differs

USED FOR
Diagnosing and monitoring heart failure

MAIN LIMITATION
Other conditions can raise BNP without heart failure

Overview

A brain natriuretic peptide test measures BNP in your blood. Despite its name, BNP is produced mainly by the heart. It is also called B-type natriuretic peptide .

The heart releases more BNP when its chambers are under increased pressure or stretch. The test is most often used when symptoms could be caused by heart failure, which means the heart is not pumping or filling as effectively as the body needs. It does not mean the heart has stopped.

A related test measures NT-proBNP , an inactive piece made at the same time as BNP. The tests provide similar clinical information, but their numbers are not interchangeable.

BNP cannot identify the cause of heart strain by itself. It is considered alongside your symptoms, examination, medical history, electrocardiogram and imaging such as an echocardiogram.

Why the test is ordered

BNP may be ordered to assess whether heart failure could explain symptoms such as:

In an emergency department, BNP may help distinguish heart failure from lung conditions and other causes of sudden breathlessness.

If you already have heart failure, testing may sometimes help assess changes in heart strain or response to treatment. However, a change in BNP does not always mean your condition is better or worse, so routine repeat testing is not useful in every situation.

- Shortness of breath, especially during activity or when lying down
- Swelling of the feet, ankles, legs or abdomen
- Unusual tiredness or reduced ability to exercise
- Rapid weight gain caused by fluid retention
- Waking at night feeling short of breath

Who should have the test

You may be offered BNP testing when your symptoms and examination suggest possible heart failure but the cause is uncertain. It can also be useful if you have another condition, such as lung disease, that could cause similar symptoms.

Testing may be considered if you have relevant symptoms and risk factors such as a previous heart attack, high blood pressure, heart valve disease or treatment with medicines that can damage the heart.

BNP is not generally used as a stand-alone screening test for everyone without symptoms. Whether it is appropriate depends on your history, examination and reason for testing.

How to prepare

You can normally eat and drink as usual. Fasting is not required.

Take your usual medicines unless you have been specifically told otherwise. Do not stop heart or blood pressure medicines to change the result.

Tell the healthcare professional about all medicines and supplements you take. In particular, mention sacubitril/valsartan because it can affect BNP differently from NT-proBNP.

Vigorous exercise can temporarily increase BNP. Before a planned test, avoid unusually intense exercise and follow any laboratory instructions. Do not delay urgent assessment to

prepare for the test.

What happens during the test

A healthcare professional places a band around your upper arm, cleans the skin and inserts a small needle into a vein, usually inside your elbow. Blood is collected into a tube.

You may feel a brief scratch or sting. The blood draw usually takes only a few minutes, after which pressure or a dressing is placed over the site.

The sample is usually sent to a laboratory, although some hospitals can measure BNP near the bedside. Results may be available within an hour in urgent settings or take a day or longer through outpatient services.

Understanding your results

Your report may show BNP in picograms per millilitre or nanograms per litre. These units are numerically equivalent, but use the units and reference range printed on your report.

A lower BNP makes heart failure less likely, particularly when assessing new breathlessness. A higher BNP suggests increased pressure or strain in the heart, but does not prove heart failure.

There is no single range that applies to everyone. Interpretation varies with the laboratory method, age, pregnancy status, kidney function, medicines and clinical context. BNP and NT-proBNP also have different expected values.

A result obtained during sudden severe breathlessness may be interpreted differently from one taken at a routine visit. Trends can sometimes help, but only when the same type of test and the wider clinical picture are considered.

What affects the results

BNP reflects pressure and stretch in the heart, not only heart failure. It may be higher with:

BNP may be lower than expected in people with obesity. It can also fall when diuretics and other effective treatments reduce pressure inside the heart.

Sacubitril/valsartan slows BNP breakdown, so BNP may stay raised even when treatment is working. NT-proBNP is not affected in the same way and may be more useful soon after starting this medicine.

Rarely, blood antibodies or supplements such as high-dose biotin can interfere with some

laboratory methods. Tell the healthcare team if your result seems inconsistent with your symptoms or other tests.

- Reduced kidney function
- Increasing age
- Atrial fibrillation
- Heart valve disease, pulmonary hypertension or right-sided heart strain
- Heart attack, severe infection or a blood clot in the lungs
- Pregnancy, particularly around delivery or with complications
- Anaemia
- Recent vigorous exercise
- Large amounts of intravenous fluid or a recent transfusion

Accuracy and limitations

A low BNP is useful for ruling out heart failure, but the test is not perfect. It can miss heart failure, particularly in people with obesity or early or treated disease. A low result should not override strong clinical evidence.

BNP can also be high when heart failure is not the main cause. Kidney disease, atrial fibrillation, older age, severe infection and other heart or lung conditions can raise it.

The test cannot show the heart's structure, pumping strength or valve function. An echocardiogram , which uses ultrasound to create moving images of the heart, is better for those questions. An electrocardiogram can assess heart rhythm, while imaging and other blood tests may look for alternative causes.

BNP and NT-proBNP results should not be directly compared. Results from different laboratory methods may also differ.

Risks and complications

The risks are those of a routine blood draw. You may have brief discomfort, a small bruise or minor bleeding, and some people feel light-headed or faint.

Serious complications are uncommon. Tell the person taking the sample if you have previously fainted during blood tests or take medicines that affect clotting.

What happens next

A low result may lead to assessment for other causes of your symptoms. A raised result is usually followed by further investigation rather than an immediate diagnosis.

Follow-up may include an examination, electrocardiogram, chest X-ray, kidney and thyroid blood tests, or an echocardiogram. Timing depends on your symptoms, result and other findings.

Seek urgent medical advice if breathlessness or swelling is rapidly worsening, or if you are gaining weight quickly with increasing difficulty breathing.

Call emergency services for severe breathlessness at rest, chest pressure or pain, blue or grey lips, fainting, new confusion, or an inability to speak in full sentences because of breathing difficulty. Do not wait for a BNP result in these situations.

Common questions

Can I drink coffee before a BNP test?

Usually, yes. Fasting is not normally required. If other blood tests are being taken, follow their preparation instructions.

Does the time of day matter?

BNP does not usually require collection at a specific time. Similar conditions may make repeat results easier to compare.

Can I exercise beforehand?

Light daily activity is unlikely to cause a major problem. Avoid vigorous or unusually prolonged exercise before a planned test if practical.

Should I take my medicines before the test?

Usually, yes. Do not stop prescribed medicines unless told to do so. Tell the healthcare team if you take sacubitril/valsartan, diuretics or other heart medicines.

Is a high BNP result definitely heart failure?

No. It may indicate heart strain, but kidney disease, irregular heart rhythms and other heart or lung conditions can also raise BNP. Further assessment is needed.

Are BNP and NT-proBNP the same test?

No. They are related markers, but their values and cutoffs differ. A BNP number cannot be converted directly into an NT-proBNP number.

Sources

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