

PATIENT PRESENTING WITH SYMPTOMS
SUGGESTIVE OF HEART FAILURE

HISTORY
EXAMINATION
CHEST X-RAY
ECG

*BNP IF
DIAGNOSIS
REMAINS
UNCLEAR*

NT-proBNP
< 40 pmol/l

NT-proBNP
40-220 pmol/l

NT-proBNP
> 220 pmol/l

HEART
FAILURE
UNLIKELY
(2%)

INDETERMINATE
RESULT

Possibilities include

- Heart Failure
- ACUTE PE
- Cor Pulmonale

HEART
FAILURE
LIKELY
(95%)

Echo for the sole
purposes of
excluding heart
failure is unhelpful

If heart failure
strongly suspected,
specialist
opinion/echo may
be appropriate

Begin treatment for
heart failure.
Specialist opinion
and echo may be
appropriate for
determining
aetiology

**NB: BNP MAY BE INCREASED BY
AF, RENAL FAILURE, LVH, ACS, ACUTE PE, COR PULMONALE, ELDERLY.**

FACTORS TO CONSIDER

ECHO PRIVATE = approx \$390

ECHO SEMI-URGENT PUBLIC = 9-12 MONTH WAIT LIST

BNP TEST = approx \$40 (NO COST TO PATIENT)

BNP Measurements in Diagnosis of Heart Failure

Introduction

B-type natriuretic peptide (BNP) is released from the cardiac ventricles in response to increased wall tension. Thus, heart failure is one condition in which BNP is elevated.

Normal BNP concentrations virtually exclude the diagnosis of heart failure, and very high concentrations effectively diagnose the condition; intermediate values require confirmation by echocardiography.

The degree of BNP elevation correlates with the severity of symptoms and with prognosis.

BNP clinical use

BNP is a useful and widely used investigation. The following are a few tips on how to get the best out of the test.

- BNP is a really useful test for **excluding** heart failure in patients with dyspnoea where heart failure is suspected.
- BNP has no additive diagnostic value for patients with a clear diagnosis of heart failure e.g. chest x-ray showing pulmonary oedema.
- A normal BNP virtually excludes the diagnosis of heart failure and other causes for symptoms should be considered.
- BNP is a very reliable test with highly reproducible results so positive results do not need to be repeated.
- If the NT-proBNP is >220 pmol/l in a patient with symptoms of heart failure treatment should be initiated and the patient referred for specialist opinion. The specialist assessment is to determine the aetiology, which may influence future management.
- Repeat testing is rarely indicated and is only recommended on the request of a cardiologist. If in doubt please discuss with a cardiologist.

Limitations of BNP

BNP may be raised by renal failure, atrial fibrillation, LVH, acute coronary syndromes, acute pulmonary embolus, cor pulmonale and in the elderly. BNP may be decreased by hypothyroidism, treatment with diuretics, vasodilators and ACE-inhibitors.

Congestive heart failure can be due to either systolic or diastolic ventricular dysfunction. BNP does not distinguish between these two. As the treatment of these two conditions can differ an echocardiogram is recommended in cases where the test is not negative i.e. NT-proBNP is not < 40 and the possibility of heart failure is still considered.