Heart Metab. (2017) 74:40-41

B-type natriuretic peptide (BNP)

B-type natriuretic peptide (BNP) is a 32-amino-acid vasoactive peptide secreted by the atria and ventricles in response to ventricular volume expansion and/or to increased wall stress (cardiomyocyte stretch) due to pressure overload. BNP elicits its biological actions—eg, natriuresis, vasodilation, diuresis, inhibition of the renin-angiotensin-aldosterone system, enhanced myocardial relaxation, inhibition of fibrosis and hypertrophy, promotion of cell survival, and inhibition of inflammation—by activating specific natriuretic peptide receptors (NPR-A)/guanylate cyclase (GC-A) that utilize cyclic guanosine monophosphate (cGMP) as an intracellular second messenger. Circulating BNP levels have been demonstrated to be a marker for prognosis and risk stratification in the setting of heart failure.

Heart failure with midrange ejection fraction (HFmrEF)

Heart failure with midrange ejection fraction (HFmrEF) is a new category of heart failure defined as heart failure with an ejection fraction between 40% and 49%. This new class of heart failure is meant to apply to patients in a "gray zone," where the benefits of therapies on morbidity and mortality have not been conclusively proven as they have been for patients with heart failure with reduced ejection fraction (HFrEF).

Heart failure with preserved ejection fraction (HFpEF)

Heart failure with preserved ejection fraction (HFpEF) is usually defined as heart failure with an ejection fraction higher than 50% and is characterized by diastolic dysfunction rather than systolic dysfunction. It is primarily accompanied by concentric remodeling and defects in left ventricular compliance. Approximately 50% of all heart failure cases are classified as HFpEF.

Heart failure with reduced ejection fraction (HFrEF)

Heart failure with reduced ejection fraction (HFrEF) is usually defined as heart failure with an ejection fraction lower than 40% and is characterized by systolic dysfunction. It is primarily accompanied by eccentric remodeling and a decreased left ventricular wall thickness. Approximately 50% of all heart failure cases are classified as HFrEF.

Mitofission

Mitofission occurs in response to changes in mitochondrial dynamics and represents the process by which a mitochondrion divides into two daughter mitochondria that are often not equal in size. Dynamin-related protein 1 is the best characterized regulator to date of the mitochondrial division machinery involved in fission. Mitofission is essential for organelle distribution during the process of mitosis; it also appears to be an important process for mitophagy, the autophagic process by which defective mitochondria are degraded by the cell.

Mitofusion

Mitofusion occurs in response to changes in mitochondrial dynamics and represents the process by which mitochondria fuse and elongate. Mitofusion is regulated by three evolutionarily conserved GTPases of the dynamin family: mitofusin-1 and mitofusin-2, which are located on the outer mitochondrial membrane; and optic atrophy-1 (OPA1), located on the inner mitochondrial membrane. Mitofusion can allow the redistribution of mitochondrial contents and mitigate mitochondrial DNA mutations.

Mitophagy

Mitophagy is a quality control pathway that removes damaged and/or dysfunctional mitochondria through autophagy-mediated degradation of the organelle (ie, mitochondrial-specific autophagy). Autophagic machinery is targeted to the outer mitochondrial membrane via protein and lipid interactions and subsequently sequesters and delivers damaged/dysfunctional mitochondria to lysosomes for degradation.

N-terminal pro–B-type natriuretic peptide (NT-proBNP)

N-terminal pro–B-type natriuretic peptide (NT-proBNP) is a 76-amino-acid peptide generated from the cleavage of 108-amino-acid proBNP (the storage form of BNP). Therefore, the cleavage of proBNP generates 76-amino-acid NT-proBNP and 32-amino-acid BNP.

NT-proBNP is not biologically active; however, circulating NT-proBNP levels have been demonstrated to be a marker for prognosis and risk stratification in the setting of heart failure.

Sensitivity

Sensitivity is also known as "true positive rate" and is a statistical measure of the performance of a binary classification test, which measures the percentage of actual positive outcomes/end points that are correctly identified as being a positive outcome/end point, hence the "true positive rate."

Specificity

Specificity is also known as "true negative rate" and is a statistical measure of the performance of a binary classification test, which measures the percentage of actual negative outcomes/end points that are correctly identified as being a negative outcome/end point, hence the "true negative rate."