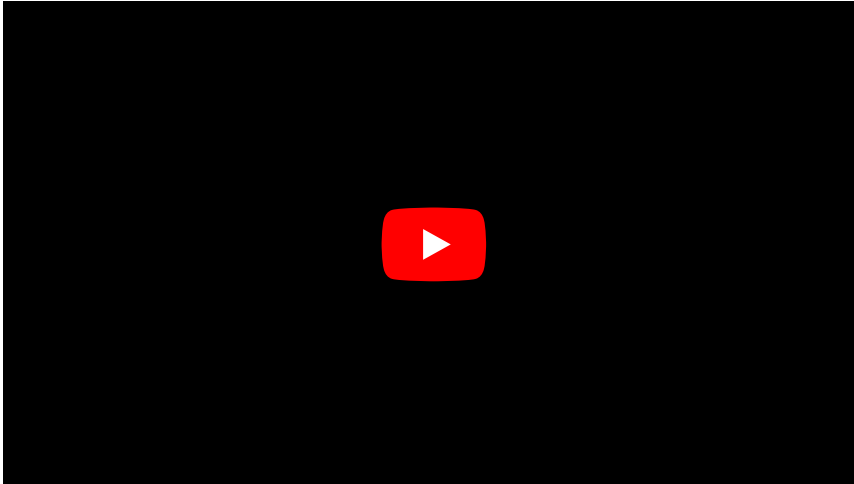
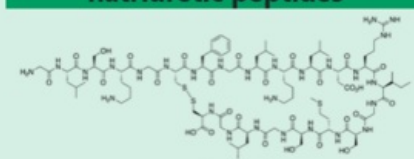


Natriuretic peptides

ANP:



natriuretic peptides



CNP formula

Gland cardiomyocytes (ANP, BNP), endothelium (CNP), kidneys (urodilatin)

Receptor NPR-A, NPR-B, NPR-C

Effects vasodilation, increased natriuresis and diuresis, cell growth inhibition and decreased sympathetic activity

Heart failure and heart failure are associated with pathological activation of neurohumoral mechanisms (especially **the renin-angiotensin-aldosterone** - RAAS axis), which lead to sodium and water retention, vasoconstriction, pathological cell growth and cardiac fibrosis, thereby potentiating the progression of heart failure. The physiological antimechanism of such pathological activation of the renin-angiotensin-aldosterone axis is the **natriuretic peptide** system . Natriuretic peptides have a vasodilating effect, increase natriuresis and diuresis , inhibit cell growth and reduce sympathetic activity. ^{[1] [2]}

Shortcuts

We currently distinguish 4 natriuretic peptides. They are :

1. **Natriuretic peptide A** (ANP, atrial natriuretic peptide). ANP is secreted by **atrial cardiomyocytes** in the form of prohormone (pro-ANP), which consists of 126 amino acids and which is cleaved into 2 fragments - the ANP itself (biologically active, consisting of 28 amino acids) and the N-terminal fragment (N-BNP, biologically inactive). The stimulus for ANP secretion is increased tension in the atrial wall
2. **Natriuretic peptide B** (BNP, brain natriuretic peptide, *brain natriuretic peptide*). It was first described in the pig's brain (hence its name). In humans, it is secreted primarily **by ventricular cardiomyocytes** , in response to increased ventricular wall tension or ventricular myocardial dilatation. It is also secreted in the form of a prohormone (pro-BNP, 108 amino acids) and cleaved into 2 fragments - the BNP itself (biologically active) and the N-terminal fragment (NT-proBNP, biologically inactive)
3. **Natriuretic peptide C** (CNP). CNP is secreted by the vascular endothelium in response to endothelial stress
4. **Urodilatin** .

The secretion of ANP and BNP by cardiomyocytes occurs during pressure and volume overload of the heart. Peptides enter the bloodstream and bind to specific receptors (NPR-A, NPR-B, NPR-C) on the surface of target cells. The labeling of individual receptors does not express their selective affinity for individual receptors

Indications

The determination of BNP or its N-terminal fraction (NT-proBNP) is used in 2 main indications:

- to rule out heart failure in a suddenly suffocating patient
- to determine the prognosis of a patient with heart failure

Laboratory values

	Chronic heart failure	Acute heart failure
BNP	> 100 pg / ml	> 500 pg / ml
NT-proBNP	> 125 pg / ml	> 1,800 pg / ml
		<i>in younger people</i> > 450 pg / ml

Interpretation of BNP values by age

	Acute heart failure ruled out	Acute heart failure highly likely
up to 50 years	less than 300 pg / ml	> 450 pg / ml
50-75 years	less than 300 pg / ml	> 900 pg / ml
over 75 years	less than 300 pg / ml	> 1,800 pg / ml

Links

Related articles

- heart failure

Reference

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Hormones		
hypothalamus	ADH • CRH • GHIH • GHRH • GnRH • oxytocin • PIH • PRH • TRH	
hypophysis	ACTH • FSH • LH • MSH • prolactin • STH • TSH	
pineal gland	melatonin	
thyroid	calcitonin • T3 • T4	
parathyroid glands	parathyroid hormone	
heart	ANP • BNP	
lung	angiotensin I • angiotensin II	
pancreas	gastrin • glucagon • insulin • somatostatin • VIP	
intestine hormones	CCK • gastrin • ghrelin • GIP • motilin • neuropeptide Y • neurotensin • pancreatic polypeptide • secretin • SS • substance P • VIP	
liver	hepcidin	
adrenal glands	bark	mineralocorticoids aldosterone
		glucocorticoids cortisol • corticosterone
	androgens androstenedione • dehydroepiandrosterone • dihydrotestosterone • testosterone	
marrow	catecholamines adrenaline • noradrenaline • dopamine	
kidneys	erythropoietin • calcitriol	
placenta	estrogen • hCG • human placental lactogen • progesterone	
gonads	progestogen progesterone	
	estrogens estradiol	
	testosterone -	
adipose tissue hormones	adipose tissue hormones adiponectin • leptin • resistin	
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