

Nerves of Heart

The heart contains three basic types of innervation that ensure its activity. This is done using automatic action potential generators, which are:

- of myogenic origin (**cardiac automatism**),
- system of **autonomic fibers** (sympathetic / parasympathetic),
- **sensitive innervation** , conducting impulses from the heart (centrifugally).

Cardiac automation

See Cardiac conduction system for more detailed information .

It ensures regular contractions of the heart muscle. It maintains the underlying rhythm even when cut off from the CNS .

Autonomic nervous system

Sympathetic Fibers

The sympathetic nerve contains fibers **of the nervi cardiaci** from the sympathetic trunk, they include:

- n. cardiacus cervicalis superior, medius et inferior (cervical part of the sympathetic trunk);
- nn. cardiaci thoracici (branches from the upper section of the thoracic sympathetic).

Preganglionic fibers originate from the cells of the lateral columns of the spinal cord from the gray matter, approximately from the first 5-6 thoracic spinal cord segments. They end in three cervical and cranial thoracic sympathetic ganglia.

The sympathetic generally *accelerates the action of the heart, prompts it to work more intensively, and dilates the coronary arteries* .

Parasympathetic fibers

The parasympathetic contains fibers from the *vagus* nerve . Superior preganglionic fibers originate from cells of the parasympathetic nucleus located in the medulla oblongata . They then leave the vagus trunk as **rami cardiaci** :

- rami cardiaci cervicales superiores, inferiores et thoracici.

Once the fibers reach the heart, they terminate at the ganglion cells and send postganglionic fibers to the heart.

The parasympathetic generally antagonistically *slows the heart rate and constricts the coronary arteries* .

Plexus cardiacus and plexus coronary

The cardiac plexus is a mixed sympathetic and parasympathetic network, which is divided into:

- plexus cardiacus superficialis – ventrally between the aorta and the lung ;
- plexus cardiacus profundus – dorsally between the aorta and bifurcation of the trachea .

Part of the cardiac plexus are **cardiac ganglia** , from which postganglionic parasympathetic fibers emerge. **Plexus coronarius** dexter et sinister contain nerve fibers for the walls of the coronary vessels and the walls of the heart.

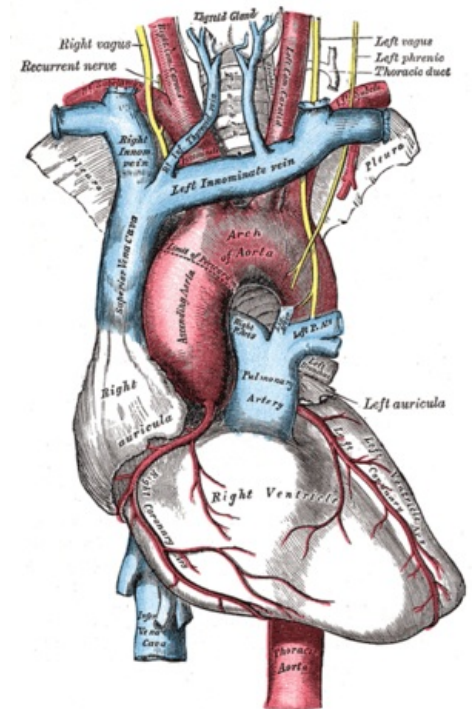
Sensitive fibers

These fibers are connected to the sympathetic and parasympathetic and conduct impulses from the heart. They are most often responsible for severe pain during hypoxia of the heart muscle (*angina pectoris*). These also include fibers designated as *baroreceptors and volumoreceptors* . Thanks to them, the tension of the heart vessels and thus the blood pressure is regulated .

Links

Related Articles

- Heart



Heart

- Vascular supply of the heart
- Cardiac conduction system
- Heart/histology

References

- ČIHÁK, Radomír – GRIM, Miloš. *Anatomie 3. 2.*, upr. a dopl edition. Grada, 2004. 673 pp. 3; pp. 44-50. ISBN 80-247-1132-X.