ВЗАИМОТНОШЕНИЕ СОСУДОВ И НЕРВОВ В ПЕРИКАРДЕ ЧЕЛОВЕКА

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THEINTERFACING BETWEEN VESSELS AND NERVES INTHE HUMAN PERICARDIUM

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Pericardium has a very broad and extensive net of arterial and venous vessels.Therefore, our study would be incomplete if we did not examine those sometimes quite close neurovascular interfacing that is found among the pericardium tissue elements.

The existing interfacing in the pericardium nerve trunks and blood vessels is characterized by extreme inconstancy. In some cases anerve trunk accompanies vessel and then departs from it aside and disintegrates in surrounding tissue. In other cases a nerve trunk runs independently on greater or lesser extent and then attaches to a blood vessel and then follows along with it.Sometimes a nerve accompanies a vessel at some lengthafter which leaves the conjoint bed and passes a short distance and then rejoins to one or another nearby blood vessels.Similar inconstancy, as we think, is observed in the method of dividing of blood vessels and nerves accompanying them: synchronicity of division is not always expressed clearly enough.

One, sometimes two, nerve trunk accompanying an artery with its companion veins forms the neurovascular bundle. Normally a nerve is arranged between an artery and vein. A nerve accompanying an artery often crosses from one side to another, at that giving a more or less powerful bundle of nerve fibers.The latter either also accompany blood vessels or go to the pericardium. Nerve trunks which move in line with the direction of vessels, apparently, give some of their fibers for the innervation of vascular wall so you can always determine where they end.For the majority of nerves, most likely, a vessel is a free cable through which they pass into the body of pericardium. Thus, nerve fibers both innervating a vascular wall and transient ones are associated with the vascular wall.

Often nerve trunks and bundles of various calibers, crossing the blood vessels in different directions, become more wide and densified. After crossing with a vessel a trunk narrows again, fibers arrange more compactly and shape of a trunk returns to the same form.

At the same time, such seals lie on an anterior or posterior surface of vessels. Whena nerve crosses a vesselin several places, similar divergence of axis cylinders in each of these areas is formed. We also met such forms of relations between vessels and nerves, in which a nerve forms a loop surrounding a vessel.

The interfacing between nerves and vascular glomerules are interesting.Study of such areas under the microscope showed that axis cylinders of nerves that approach to vascular glomerule within the latter pass from one nerve to another. Nerves located near the vessels not only accompany the blood vessels in the form of bundles of fibers, but often form around them dense perivascular plexus which include myelinated and nonmyelinated nerve fibers.In our preparations we have repeatedly observed nerve trunks accompanying the vessels and sinking with them into the deep layer of pericardium. Especially well-developed plexuses are determined along the most major arteries and veins. As they approach the capillaries the number of nerve elements gradually decreases.

Topographically, the most developed vascular nets are identified on the anterolateral surface on the left, in middle and lower zones. Plexuses located in the perihilar zones and in the area oftransitional folds takes thesecond place in the expression and development.With regard to layers of pericardium, the most dense vascular and nerve plexuses are found in the surface layer, whereas in the deep layer, they have rarefied form.

Not only nerve fibers, bundles and trunks come into close contact with blood vessels, but the nerve endings too. Some receptors of capillaries, arterioles and venules are characterized by the fact that their terminals not only contact with the vessel wall, but also end in the thickness of pericardium.

Along with multivalent receptors it is always revealed a large number of encapsulated corpuscles arranged singly and in groups.As we have mentioned, the vascular net is most developed in surface layer of anterolateral surface on the left of pericardium, where there isa particular characteristic picture of relationship of encapsulated corpuscles with vessels.Some of them lie close to vessels or come in direct contact with their wall,other are found in places of dichotomous division of vessels, third ones are located among the capillary net.

Results of our observations suggest that human pericardium offers n large microextensive neurovascular net. Individual nerve trunks included into its structure often accompany the vessels at a considerable distance and divide synchronously with them. Other accompany the vessels at a small distance, then leave them and spread out in surrounding connective tissue. Third ones go independently regardless of the direction of vessels flow.Such interfacing between vascular and neural elements create a picture of nets, developed the most in the lower zone of anterolateral surface of pericardium, which corresponds to the apex of the heart.

Neurovascular plexuses of a deep layer in comparison with the surface layer are located more evenly over the entire surface of pericardium. The saturation of these plexuses with vascular and nerve elements significantly inferior a surface layer.