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Postnatal Ontogeny of Offspring Kidney in Conditions of Chronic Poisoning of the Maternal Organism

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ABSTRACT

The kidney (Latin ren, Greek nephrous) is a paired (right and left) bean-shaped organs with flattened front and back sides, weighing 140-150 g in middle-aged people. The kidney is located on both sides of the body of I-II lumbar vertebrae, on the back side of the abdominal cavity, in contact with the muscle and diaphragm. The peritoneum covers the kidney only in front. Since the liver is located on the upper right side of the abdomen, the right kidney is located below the left. The upper end of the left kidney corresponds to the gap between the II and III lumbar vertebrae.

KEYWORDS: *Kidneys, superior, diaphragmatic, abdominal, lateral*

Epidemiologic studies from several different populations have demonstrated that prenatal insults, which adversely affect fetal growth, result in an increased incidence of hypertension when the offspring reaches adulthood. It is now becoming evident that low-birth-weight infants are also at increased risk for chronic kidney disease. To determine how prenatal insults result in hypertension and chronic kidney disease, investigators have used animal models that mimic the adverse events that occur in pregnant women, such as dietary protein or total caloric deprivation, uteroplacental insufficiency, and prenatal administration of glucocorticoids. This review examines the role of the kidney in generating and maintaining an increase in blood pressure in these animal models. This review also discusses how early postnatal adverse events may have repercussions in later life. Causes for the increase in blood pressure by perinatal insults are likely multifactorial and involve a reduction in nephron number, dysregulation of the systemic and intrarenal renin-angiotensin system, increased renal sympathetic nerve activity, and increased tubular sodium transport. Understanding the mechanism for the increase in blood pressure and renal injury resulting from prenatal insults may lead to therapies that prevent hypertension and the development of chronic kidney and cardiovascular disease. They are distinguished by the upper and lower ends of the kidney, the superior and inferior extremitas, the medial and lateral edges (margo medialis et lateralis), the anterior and posterior surfaces (facies anterior and posterior). The lateral edge of the kidney is convex, and the medial edge is concave, and the center is called the hilus renalis. An artery, an efferent vein, a lymphatic vessel and a ureter enter the heart and lungs.

Porota pochki otkryvayutsya v uzkoe prostranstvo — sinus pochki. In the kidney, divided into two parts, you can see the brown cortex of the kidney 4-5 mm thick (cortex renis) and the medulla renis, which is grouped separately and arranged in a pyramid. A broad-sided pyramid (pyramides Renales) is located on the back of the horse's kidney, and a papillary cone (papillae Renalis) is located on the side of the kidney. Pyramids around 1 mln. iz melkikh kanaltsev (nefronov). The kidney is a mucous excretory organ, containing multiple small renal tubules (renal tubules). Odin konets pochechnyx kanaltsev zakryt, a ego stenka zakanchivaetsya dvukhsloynoy kapsuloy — kapsuloy klubochkov (kapsuloy Shumlyanskogo-Boumena). Oni, v svoyu ochered, okrujayut klubochek. Vmeste s etim klubochkom i kapsuloy on obrazuet teltse pochki, corpuscula renis. Pochechnye teltsa i kanaltsy obrazuyut nephron (nephron) - strukturno-funktsionalnuyu edinitsu pochki. Kajdaya pouch has about 1 million nephrons. Tela chek prodoljayutsya neposredstvenno v proximalnye izvitye kanaltsy - tubulus renalis contortus proximalis, i napravlyayutsya ot kojnogo veshchestva pochki k pyramidam. Tubochki podkhodyat k contsu pyramidy i dut nazad, obrazuya loop nephrona. K sobiratelnym tubochkam prisoedinyayutsya distal izvitye canaltsy, dostigayushchie corkovogo veshchestva, - tubulus renalis contortus distalis. These tubes are located in the pyramids and have a direct direction - tubulus renalis rectus. As a result of their gradual merging, 15-20 short tubes are formed - ductus papillares, which open to the top of the pyramid (foramina papillaria). Therefore, the primary urine formed during filtration from the vascular glomerulus into the space of the capsule is close in composition to blood plasma without these ultrafiltrate proteins. During the passage of primary urine through the renal tubules, water, mineral salts and other substances necessary for the body are reabsorbed, resulting in the formation of true urine. The pyramid of urine is poured into small cups (calyces Renalis Minores) surrounding the nipple. 8-9 small calyxes are connected to each other, forming 2-3 large calyxes - calycesrenalis majores, which, connecting with each other, form the renal calyx - pelvisrenalis. Once it exits the renal hilum, it continues into the urinary tract and opens into the bladder. Topography of the kidneys. The posterior surface of the kidney is in contact with the abdominal wall (muscles) and the diaphragm. The upper end of both kidneys is covered by the adrenal glands. The anterior section of the right kidney is close to the liver from above, and the lower section is close to the right flexure of the colon. The descending part of the duodenum touches its inner edge. The upper part of the anterior surface of the left kidney approaches the pancreas, and the lower part approaches the left fold of the stomach and colon, and the outer edge of the kidney touches the spleen. Shells of the kidneys. The kidney is surrounded by a shell of fibrous tissue - a fibrous capsule, which is covered on the outside with a fatty layer (shell). Thick or thin fat layer (fat capsule) depends on the degree of obesity of the person. The fatty membrane is surrounded by the renal fascia. In addition to the membranes and fascia mentioned above, pressure in the abdomen, renal blood vessels, and organs in contact with the kidney greatly helps to keep the kidney in place. Renal blood

vessels. Renal artery from the abdominal aorta a. renalis at the gate of the kidney three - the upper part (pole - pole) aa. polares superiores, middle central part aa. central and lower part aa. is divided into polares inferiores branches. To the artery located between the lobes of the kidney a. are called interlobar. They are built on the basis of the pyramids - aa. forming arcuate and located on the border of the bark and pulp.

The cortical arteries branch into interlobular arteries (aa. interlobulares), heading towards the medulla, passing through the nodes (pars convoluta corticis) in the cerebral cortex of the kidney, which in turn form a vascular tangle. branches to the afferent. The artery that carries blood from the vascular glomerulus (vas. efferens), in turn, branches into small capillaries and surrounds the renal tubules. From these channels, venous blood vessels begin, which are located together with the arteries of the same name. Venous blood from the cortical part of the kidney through the stellate veins (venulae stellatae) vv. into the interlobular, and then between the cortical and brain sections vv. flows through the arcuate veins into straight venules. These veins join together, v. forms a kidney. Renal vein - v. renal in the form of a single trunk exits the gate of the kidney and flows into the inferior vena cava. Due to the presence of a muscular layer in the wall of the artery, which is part of the vascular tangle, it is thicker and stronger. His blood pressure is on average 90-100 mm. The pressure inside the capsule (60 mm) and the pressure of the arterial vessels emerging from it does not exceed 25-30 mm. Finally, the pressure in the urethra is 10 mm. Thus, the pressures between the blood vessels of the renal pelvis are different, which causes the primary separation of urine. Kidney diseases are different, and their symptoms are also different:

- swelling of the body, pain in the back and head, shortness of breath, increased heart rate, increased blood pressure - signs of nephritis;
- High body temperature, sweating, muscle pain, nausea and vomiting, frequent and painful urination, darkening of urine color - symptoms of pyelonephritis;
- With the transition of pyelonephritis to a chronic form, the patient's body temperature sometimes rises. During sleep, he sweats a lot, the skin of the face becomes dry and yellow, blood pressure rises, back pain occurs;
- Kidney failure is manifested by urinary incontinence, headache, nausea, nervous system disorders, decreased vision, diarrhea and vomiting. In such cases, contact your doctor immediately.
- A change in the color of urine, the appearance of a specific smell in it, a sharp pain indicate kidney stones.

Literature

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