Azərbaycan Respublikası Səhiyyə Nazirliyi

Respublika Dövlət Elmi Tibb Kitabxanası

V.Y.AXUNDOVUN 100 İLLİK yubileyinə həsr edilmiş elmi-praktik konfransın tezislər toplusu

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VƏLİ YUSİF OĞLU AXUNDOVUN

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Elmi redaktor: prof.t.e.d. N.M.Kamilova

Redaktor müavini: Y.U.Pirəliyeva

Tərtibçi: K.R.Rəsulova

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Velyka A.Ya.

Changes in excretory function of rat kidneys under conditions of salt loading on the background of mercury chloride nephropathy

Higher State Educational Establishment of Ukraine
" Bukovinian State Medical University ", Chernivtsi

Human and animal kidneys can within wide range and with high selectiveness choose intensity of water excretion and ions, providing stability of liquid structure of internal medium. Decrease of reabsorbed intensity, penetrability of canalicular wall for water or intensification of glomerular water filtration and diluted substances result into increase of urine excretion. Water and salt loading were carried out 2 hours before euthanasia, intragastrically through a metal tube. 2 hours after loading the animals were decapitated under the light ether anesthesia. Mercury chloride intoxication of animals was conducted subcutaneously by aqueous solution of mercury chloride (II) at a dose of 5 mg per kg body weight.

Since extracellular sodium concentration is an important parameter of the constant internal medium, the effect of hypersodium loading on the state of regulation of sodium homeostasis system, on kidney function in rats with mercury dichloride nephropathy has been studied. Thus, rat indices of urine output were not substantially changed within 3% and 0,75% of salt loading as compared with control. However glomerular filtration rate became doubled at 3% salt loading and from 0,75- to 76% as compared with control. At given 3% salt loading on the background of mercury chloride intoxication, concentration of creatinine in the blood plasma increased by 98%, in urine- 4,58 times according to the indices of control group, while at 0,75% sodium chloride loading under the same poisoning conditions: in the blood plasma- twice, in urine- three times. Salt loading (3%) against the background of mercury dichloride nephropathy leads to glomerular filtration abnormality and tubular reabsorption, accompanied by an increase in comparison with the control of the concentration index of endogenous creatinine (on average 2 times), glomerular filtration rate (2 times), the concentration of protein urine (6.2 times); the concentration of potassium in the urine (5.5 times), rate of excretion of potassium (5.3 times), excretion of sodium (4.6 times). Titrating acid excretion and ammonia during mercury dichloride nephropathy is increasing on average by half.

Therefore , water loading leads to increased urine output growth as a result of GFR. Increased concentrations and excretion of sodium was primarily the result of a decrease in its tubular reabsorption. While at the same time, following the creatinine excretion and changes in the calculation of glomerular filtration in animals injected by NaCl, glomerular filtration increased simultaneously with increasing sodium filtration charge.

Thus, the received data indicate the typical course of renal pathology in animals after modeling mercury chloride nephropathy with marked oliguria appearing in loading test, characterized by a decrease of urine output and insignificant increase in GFR, increase creatinine concentration and protein in urine. Such changes characterize the ability of the kidneys to the water loading output.

Yevtushenko I.Y.

Dynamics of change in volume of renal calyces of mature and elderly people in different age groups

Kharkov national medical university
Department of operative surgery and topographic anatomy

On the basis of the linear morphometric characteristics of 175 human kidneys we studied volumes of renal calyces in age aspect, which is the morphological basis for percutaneous renal puncture and extracorporeal lithotripsy as well as for evaluation the degree of morphological changes in hydronephrosis that meets the requirements of modern urology.

Age-specific analysis of the material indicates a decrease in the total volume of renal cups with

age, and this largely occurs due to renal calyces with largest volume: upper (I, volume decreases by 2 times) and lower (S, the volume decreases by 3 times).

From volume-component study of renal calyces based on organometric analysis we developed a classification of human renal calyces by volume characteristics and the dynamics of age-specific changes in volume.

Classification of human renal calyces (by volume):

1. Characteristic of renal calyces by volume (mm^3);
- renal calyx with large volume - Vrc>900
- renal calyx with middle volume - 500<Vrc<900
- renal calyx with small volume- 500<Vrc

2. Characteristic of renal calyces by age-specific volume changes:
- renal calyx which progressively decreases -I, S
- renal calyx with changing volume - A_2, P_2
- renal calyx with stable volume - A_3; A_1, P_3, P_1

Using the classification features listed above, renal calyces are classified as follows:
- upper renal calyx - large volume, decreasing progressively with age;
- upper anterior renal calyx- stable volume;
- lower anterior renal calyx- small volume, increasing with age;
- upper posterior renal calyx- small stable volume;
- middle posterior renal calyx- small volume, decreasing with age;
- lower posterior renal calyx- small stable volume;
- lower renal calyx- middle volume, decreasing progressively with age.

The advantage of classification is the quantitative approach.