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THE RENIN-ANGIOTENSIN-ALDOSTERONE SYSTEM AND ITS ROLE IN THE DEVELOPMENT OF HYPERTENSION

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Abstract
This article examines the role of the renin-angiotensin -aldosterone system (RAAS) in the development of arterial hypertension, as well as its pathogenesis, modern diagnostic and treatment methods. The impact of RAAS hyperactivation on vascular tone, sodium retention, and cardiovascular complications is highlighted.

Keywords: Renin, angiotensin, aldosterone, hypertension, vasoconstriction, endothelium, nephropathy, myocardium, hemodynamics, atherosclerosis, hypoxia, fibrosis, sodium, catecholamine, autoregulation.

Introduction

Arterial hypertension today's on the day world health storage in the system the most current from problems one is considered. World health storage organization to the information according to the world from 1.3 billion more than human arterial hypertension with is living and this indicator year gradually increasing is progressing. Forecasts According to, by 2030 heart and blood vein diseases with related of deaths main part hypertension organization Hypertension in development genetic addiction, stress, obesity and metabolic disorders with one in the order renin- angiotensin - aldosterone system important pathogenetic factor is considered. This of the system hyperactivity veins spasm, sodium and water retention, myocardium hypertrophy and kidney of activity to the violation take Therefore, the RAAT mechanisms deep study clinical practice for big importance has.

Literature comment

Latest in years take visited renin- angiotensin - aldosterone in studies arterial pressure of the system in management central role wide illuminated. Braunwald and co-authors RAAT heart shortage and hypertension in development the impact based on Guyton physiological mechanisms through kidney and between RAAT dependency showed. Uzbek scientists Karimov and Akhmedov hypertension with sick in patients aldosterone amount increase heart and blood vein complications strengthen emphasized. Modern ACE inhibitors in studies and angiotensin receptors blockers arterial hypertension therapy main tools as record From now on except for RAAT endothelial dysfunction and with oxidative stress The connection is also scientific. in terms of approved.

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MAIN PART

Renin- angiotensin - aldosterone system arterial pressure in the body and salt water exchange manager complicated neurohumoral system is considered. The system elementary Renin is an enzyme that is produced by the kidneys. juxtaglomerular in the apparatus working will be issued and blood in the plasma angiotensinogen converts it to angiotensin I. Later angiotensin under the influence of a converting enzyme angiotensin II formation It will be. Exactly. angiotensin II RAAT main biological active component is considered.

Angiotensin II is potent vasoconstrictor is peripheral blood of the veins to narrow reason As a result, arterial pressure rises. From this except, it is kidney above gland bark from the part aldosterone secretion Aldosterone stimulates the distal tubules. sodium and of water again absorption strengthens, this and blood size to increase take comes. With this together potassium ions release increases.

RAAT activation far continue if it does, heart-blood vein in the system structure changes to the surface For example, the left ventricle hypertrophy, vascular of the walls thickening and fibrosis processes Angiotensin II fibroblasts proliferation strengthen collagen synthesis This increases heart muscle elasticity reduces. Clinical in observations hypertension with sick in patients myocardium fibrosis high at the level meeting RAAT chronic activation with related that is determined.

RAAT again one important aspect endothelial dysfunction with Angiotensin II is reactive. oxygen radicals harvest to be strengthens and nitrogen oxide synthesis reduces. As a result of the veins physiological expansion ability This situation atherosclerosis to develop ground creates. Especially sugary diabetes and obesity with passing metabolic RAAT activity in the syndrome further high will be.

Clinical in practice RAAT blocker drugs wide ACE inhibitors are used. and angiotensin receptors blockers lower blood pressure effective reduces heart and kidney protection does. Example enalapril, lisinopril, losartan and valsartan as to bring This is possible. drugs chronic heart shortage and diabetic also high in nephropathy efficiency showed.

Results

Analyses this shows that the renin- angiotensin - aldosterone Systemic arterial hypertension in development main pathogenetic from mechanisms one RAAT activation as a result vein tone increases, sodium and water in the body caught remains and heart and blood vein to the system loading increases. Especially angiotensin II biological impact hypertension in development central place It not only vasoconstriction to the surface brings, maybe myocardium and vein on the walls irreversible structure It also shapes change.

To the observations According to, RAAT activity high was in patients heart deficiency, stroke, nephropathy and myocardium heart attack such as complications more occurs. Therefore this the system control to do modern cardiology priority from directions one ACE inhibitors and angiotensin receptors blockers arterial pressure using standardization with together, heart and kidney tissues protection to do opportunity there is.

Also, RAAT metabolic syndrome, obesity and diabetes with integral dependency Insulin resistance has been identified. there is was in cases angiotensin II production release increases and endothelial dysfunction It deepens. This atherosclerosis development accelerates. In this respect RAAT study not

only hypertension, maybe other metabolic and heart and blood vein diseases prevention It is also important for.

Scientific sources analysis this shows that early diagnostics and individual approach based on take visited therapy hypertension complications to reduce help gives. Especially genetic factors study in the future personalized treatment methods working exit opportunity gives.

Muhokama

Renin- angiotensin - aldosterone system physiological importance in the body hemodynamic balance storage with related although, its chronic activation pathological of processes to develop reason will be. Modern scientific to views according to, hypertension only vein narrowing with not, maybe neurohumoral and metabolic of violations complicated combination with This point of view RAAT central from the point of view regulator system as is being considered.

Discussion being done main from issues One is the individual variation in RAAT activation. Some in patients aldosterone secretion advantage if it does, in others effects of angiotensin II more This situation is observed. treatment also affects the choice For example, some ACE inhibitors in patients If it gives high efficiency, then another in cases angiotensin receptors blockers preferably to be possible.

Another one important aspect RAAT kidney activity with integral Kidney perfusion Decreased renin secretion strengthens and " pathological" circle " crop" As a result, arterial pressure further This mechanism renovascular hypertension in the example of obvious manifestation will be.

Current in the period scientific research RAAT genetic the basics to study targeted. ACE gene polymorphism and aldosterone synthase in the gene changes some in populations hypertension the risk increase determined. In the future genetic screening individual prevention based on and treatment strategies working exit probability high.

So Thus, RAAT is not only used to treat arterial hypertension in pathogenesis, but heart and blood vein system many universal regulator in diseases system as important place occupies.

Conclusion as in other words, renin -angiotensin - aldosterone Systemic arterial hypertension development main pathogenetic from mechanisms one This is of the system chronic activation vein spasm, water-salt retention and heart and blood vein complications to increase take comes. Modern in therapy RAAT blocker drugs high clinical efficiency showing. In the future genetic and molecular of research individual approach to development based on effective treatment opportunities expands.

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