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HIGH PRESSURE AND CHRONIC RENAL DISEASE

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Abstract: Blood pressure is the force of blood pushing against blood vessel walls as the heart pumps out blood, and high blood pressure, also called hypertension, is an increase in the amount of force that blood places on blood vessels as it moves through the body. Factors that can increase this force include higher blood volume due to extra fluid in the blood and blood vessels that are narrow, stiff, or clogged. Blood pressure test results are written with two numbers separated by a slash. For example, a health care provider will write a blood pressure result as 120/80. A health care provider will say this blood pressure result as "120 over 80." The top number is called the systolic pressure and represents the pressure as the heart beats and pushes blood through the blood vessels. The bottom number is called the diastolic pressure and represents the pressure as blood vessels relax between heartbeats.Most people without chronic health conditions have a normal blood pressure if it stays below 120/80. Prehypertension is a systolic pressure of 120 to 139 or a diastolic pressure of 80 to 89. High blood pressure is a systolic pressure of 140 or above or a diastolic pressure of 90 or above. Have their blood pressure checked. People should talk with their health care provider about their individual blood pressure goals and how often they should.Hypertension and hypertension(HTA)-associated ESRD are epidemic in society. The mechanisms responsible for renal progression in mild to moderate hypertension and those groups most at risk need to be identified. Historic, epidemiologic, clinical, and experimental studies on the pathogenesis of hypertension and hypertension-associated renal disease are reviewed and an overview/hypothesis for the mechanisms involved in renal progression is presented. There is increasing evidence that hypertension may exist in one of two forms/stages. The first stage, most commonly observed in early or borderline hypertension, is characterized by salt-resistance, normal or only slightly decreased GFR, relatively normal or mild renal arteriolosclerosis, and normal renal autoregulation. However, little is known about the effects of blood pressure reduction in the end of renal disease stage (ESRD). Data from large clinical studies have clearly shown that patients with hypertension have an increased risk of developing ESRD.Black men and women with hypertension are at greatest risk;However, the incidence of ESRD has increased in all racial groups. Because hypertensive patients with ESRD require dialysis often, the cost of treatment of this disease is extremely expensive.The main effect of reducing blood pressure in patients with ESRD is not properly treated. Except HTA that affects in the progress of chronic failure kidney the disorders of lipid metabolismalso affect in patients with CKD which are described for the first time ,in 1827 by Dr. Bright, especially in patients with nephrotic syndrome (1). Therefore, strategies aimed for identification,prevention and treatment of CKD and its associated factors with the risk of the disease are so important. In the discussion we focus on the role of hypertension in the development and progress of chronic renal disease.We will also present the high blood pressure objectives to be achieved to slow the progression of end stage renal disease, the influence of proteinuria as well as on renoprotective effects antihypertensive therapy -mainly angiotensin-converting enzyme inhibitors (ACE-i) and achieved level of arterial pressure. Arterial hypertension (HTA) is counted as one of the main causes that affect the progression of chronic kidney disease (CKD) and the risk of cardiovascular diseases (CVD).Numerous studies verify thatthere is a strong link between HTA and CKD .Arterial hypertension is an important cause of ESRD there are some other diseases too that are contributing for the progression of the disease.On the other hand, hypertension is very spread in patients with IRK (Kidney Chronic Disease-CKD), having a very important role in CVD appearance and high degree of mortality in patients with ESRD. This chapter will focus on the pathogenesis of HTA and the impact of it in progress of ESRD.The etiology of arterial hypertension is multifactorial It is known that patients with CKD present early atherosclerosis and CVD, cerebrovascular complications more frequent and in younger age compared to healthy population.Arterial hypertension is an independent risk factor for the rapid pace of high CKD consequences to cardiovascular disease and high mortality increase (2,3,4,5). The prevalence of CKD in fact is defined by the level of renal injuries randomized by values of instance glomerular filtration (GFR-Glomerular Filtration Rate) by Coccroft& Gault formul .

Key words : Blood pressure,CKD

1 INTRODUCTION

High blood pressure can damage blood vessels in the kidneys, reducing their ability to work properly. When the force of blood flow is high, blood vessels stretch so blood flows more easily. Eventually, this stretching scars and weakens blood vessels throughout the body, including those in the kidneys.

If the kidneys' blood vessels are damaged, they may stop removing wastes and extra fluid from the body. Extra fluid in the blood vessels may then raise blood pressure even more, creating a dangerous cycle.

High blood pressure is the second leading cause of kidney failure in the United States after diabetes, as illustrated in Figure 1. In addition, the rate of kidney failure due to high blood pressure increased 7.7 percent from 2000 to 2010.HTA is epidemic in our society and is the most common cardiovascular disease. In the United States, the prevalence of hypertension has increased markedly in the past 100 yr, from a frequency of 6 to 11% in the population in the early 1900s (1) to _30% today . The increase in hypertension does not simply reflect an increase in the aging

population, because the prevalence of hypertension among individuals between the ages of 45 and 54 increased from 11% in the 1930s to 31% in 2000 (2,3). Hypertension wasalso nearly absent outside Europe and America in the early 1900s but now affects 25 to 30% of people throughout the world (6).

This increase in hypertension tracks with the epidemic increase in obesity, metabolic syndrome, type II diabetes, and ESRD, raising the likelihood that these conditions are pathogenetically related and intricately linked to environmental and especially dietary changes that have occurred in the world population over the past 100 yr.HTA is important in nephrology. According to the United States Renal Data System Report, hypertension remains the second most common cause of ESRD, accounting for nearly 80,000 patients in 2001 (7). The incidence of ESRD attributed to hypertension has increased nearly eight-fold since 1981, suggesting that hypertension should be considered as important as diabetes in the current epidemic of renal disease . Understanding the pathogenesis of hypertension and how it may lead to progressive renal disease is therefore critical.Nevertheless, controversy exists over whether the diagnosis of essential hypertension-associated ESRD is correct for the large number of cases reported (8,9). There is no doubt that severe (malignant) hypertension may cause progressive renal failure and that lowering BP in this condition can slow orprevent progression (10).However, the issue is whether mild hypertension can cause progressive renal disease. Whereas epidemiologic studies show that the risk for ESRD increases stepwise as BP increases from 120 or 130 mmHg systolic pressure (9 –10) opponents point out that in many cases pre-existing renal disease was not excluded . It is well known that hypertension often accompanies a decline in GFR regardless of cause (14). Because renal biopsy is not typically performed in essential hypertension, the possibility exists that cases diagnosed as hypertension-associated ESRD could represent misdiagnosed cases of atheroemboli, ischemic nephropathy secondary to atheromatous disease, or glomerulonephritis (11,12). Furthermore, although some studies have reported an increased risk for renal progression in subjects with mild or moderate hypertension, especially blacks (it is often questioned whether the observations in this particular group can be carried over to the general hypertensive population. Finally, it has been difficult to show that antihypertensive treatment alters the risk for renal progression in subjects with mild hypertension(13-15),and in some cases renal function has worsened. Nevertheless, there are reports that antihypertensive treatment can slow renal progression in mild to moderate hypertension in both whites (16-18). Experimental and clinical studies that should shed light on not only the role of the kidney in causing hypertension but also the role of hypertension in causing renal disease. Finally, we provide guidance for the identification of those hypertensive subjects most at risk for progression.

The relationship between abnormal blood pressure and kidney dysfunction was first established in the 19th century. The prevalence of both, and of the associated burden of cardiovascular morbidity and mortality, has been dramatically increasing worldwide (Kearney et al., 2005; Kearney et al., 2004; Ong et al., 2007; Schoenborn & Heyman, 2009; USRDS 2010; Meguid El Nahas & Bello, 2005). Data from several renal databases identifies systemic hypertension as the second most common cause of ESRD, with Diabetes mellitus being the first. In the United States (US), hypertension is the leading cause of ESRD in African-American patients (USRDS 2010; Klag et al., 1996; Hsu et al., 2005). Additionally, for any given cause of CKD, the elevation in systemic blood pressure accelerates the rate at which the glomerular filtration rate (GFR) declines (Perry et al., 1995). This is particularly true for patients with proteinuric nephropathies (Jafar et al., 2003).Arterial hypertension (HTA) further remains one of the most common factors of disease worldwide. Between normotensive and arterial hypetension persists not any precise definition, but based on all the preferences and the World Health Organization all the values of systolic> 140 mmHg and diastolic> 90 mmHg are treated as arterial hypertension. In recent years a number of studies have verified and documented that between HTA and lipid abnormality progress of CKD, there is a positive correlation .Common effects of HTA and uremic hyperlipidemia clearly affect in modification and lowering renal functioons causing nephroangiosclerosis with glomerulosceloris.It is rated that 10-13% of elderly eight patients in the US suffer from CKD and HTA regardless the level of CKD.HTA during IRK is more (with manifestations of cardiovascular complications with cardiomyopathy hipertensiv etc. even sometimes can be consequence of other mechanism for example hypernatremia etc. Numerous clinical studies have shown that adequate treatment and in the right time of HTA and dyslipidemia in patients with chronic CKD significantly have lower frequency of myocardial infarction, hypertrophy of the left ventricle, inadequacy of heart disease, peripheral arterial disease, retinopathy, thrombo-lytic processes and the presence of cerebrovascular stroke.According to etiology in internal medicine arterial hypertension is divided into: 1. secondary HTA which appears as a result of paren-chyma diseases ,nephrosclerosis, pheochro-mocytoma, primary aldosteronism,Cushing syndrome, etc.And 2. essential arterial hypertension (idiopathic factor) causes of which are unknown etiology and this group of HTA includes near 80-90%,although in its etiology are counted many different factors such as genetic predisposition,adiposity, age, gender, sedentarity,stress,socioeconomic status etc.Arterial hypertension and dyslipidemia further remain as the most frequent and difficult problem to treat patients with CKD considering the imbalance of electrolytes especially in the report of renin-angiotensin aldosteronsystem.Inpatients with CKD and HTA are verified high value od LDL ch and TG and low HDL ch compared with healthy control group.Due the values of high concentrations of LDL-ch it appears injuries of in the endothelial cells, in the wall of blood vessels,with decreasing the synthesis of prostaglandin 2 (PGI 2) (with its fibrinolytic and antithrombotic effect)and with exfoliation and collection effect of ox- LDL (oxidized cholesterol) in macrophages and smooth muscle cells (19-21).As the cause of lesions endothelial and stratification of LDL-ox to the walls of blood vesselsexcept other causes important role has HTA too, especially excessiveoscillations causing circular movement of blood with endothelial damages and the beginning of exfoliation the lipids in the walls of blood vessels.There are facts that in patients with CKD and HTA concentrations of atherogenic LDL-ch ,triglycerides are (TG) are significantly elevated, while concentrations of HDL-ch defense (antiaterogenic) are significantly lower (which was also verified in our studies)and the consequences of cardiovascular diseases, cerebrovascular and early atherosclerosis that are highly elevated compared with the healthy population and the control group of healthy volunteer patients (22-26). The determination of lipid abnormalities in patients with CKD to accompanied with HTA in the early stages of the disease,also the discovery ofetiopathogenic mechanisms can significantly help in preventing their consequences, which significantly will decrease the appearance of cardiovascular diseases, cerebrovascular and vascular atherogenic processes.Atherosclerotic lesions begin

with damageof vascular endothelial cells (27-29). The prevalence of Prevalenca hypertension also varies in relation with CKD and has a high positive correlation. Various associations which deal with HTA and CKD studies have verified that the highest prevalence of CKD patients is with renal artery stenosis of approximately - 93% to 87%-diabetic nephropathy, kidney and polycystic adult disease with 74% (30). If HTA in patients with CKD is associated also with any glomerulopathy or diabetic nephropathy then the impact will be manifested by an very large kidney injury accompanied with vascular injury,nephroloarthero sclerosis and glomerular proliferation, with a speed toward uremia,when the only medication is the treatment with HD intermittent. It defines the intensive loss of kidney tissue and leads to progression of CKD. HTA is present in 80% of cases in patients with CKD.In fundamental illnesses of CKD associated with HTA there is an inability of kidney to eliminate the proper amount of natrium.HTA has a huge impact on the cardiovascular system with symptoms of left ventricular insufficiency,which can be accompanied with dyspnoea and edema pulmonar.The treatment of arterial hypertension affects in slowing progression of CKD especially patients who have proteinuria> 1 g / 24h. In recent years it has proved that the best effects during treatment HTA showed ACE-inhibitors (lisinopril, captopril, Ramipri, Perindopril, Skopril, Enalapril, l, ...)as well as a new group of drugs ARB- antagonists-angiotensin receptor of Angiotensin1 (Irbersartan, Candesartan, Valsartan, losartan, Cossaar ... etc.)compared to other antihypertonics.In the progress of IRK also affect:free radicals, Growth factors (PDGF-platelet Derived Growth Factor, TGF-b-Transforming Growth Factor-b), coagulation,prostaglandins,, age , gender, race, genetic factors, consumption of tobacco,renin angiotensin system(SRA), MIA syndrome, renal anemia, nflammation,the impact of proinflammatory cytokines-interleukin, diabetes, diabetic nephropathy, disorders of glomerular hemodynamics,uremic dyslipidemia,dietary proteins, hyperfosfa-temia,renal anemia, food and eating excessive amounts of calories, horrmones, etc.From all the causes which can lead to CKD we can clearly see that in its appearance there is not only one mechanism,but the etiology of CKD is multifactorial therefore early detection of all mechanisms leading to CKD,prevention hygienic-dietary and medication in early stages can affect positively in slowing,therhythm,the speed and the progress od CKD and its complications to the cardiovascular system, brain and early atherosclerosis.In CVD genesis of patients with HTA and esrd are counted: the concentrations of oxidized cholesterol Lara-LDLox, oxidative stress,impact vasoconstrictor mechanisms as:high plasmatic concentration of endothelin-1 potent vasoconstrictor.The synthesis of nitric oxide (NO) which is counted as the strongest and the most effective vasodilator in uremia is blocked due to accumulation of excess and due reduced synthesis of nitrogen oxide (NO) by Dimenthyl-L- Argenine asymmetric (DMAA) (31-35).There verified facts and arguments that the kidneys play an important role in long-term regulation of arterial pressure Guyton and that HTA can't be presented if there are not renal injuries and sodium disorders.In fact, almost all forms of experimental and human hypertension manifest concentration disorders of sodium secretion with or without normal blood pressure . In experiments using large and isolated animals with HTA Guyton showed that there is a rapid normalization of arterial pressure after rapid stimulation and high sodium renal excretion. On the other hand, the sodium loading showed an increase in arterial pressure when the renal excretion was conditioned by inhibition of sodium excretion or from the influence of mechanisms angiotensinit or aldosterone In these circumstances, the increase in blood pressure was initially mediated by overload of the volume of extracellular fluid (ECF),, despite a reduction in total peripheral resistance.In this case, the increase in blood pressure is manifested by enlargement of the heart and increased systolic pressure .There are documented facts during the fatal accidents that hypertensive patients had less functional nephrones compared with individuals who have been dead but had normal pressure in autopsy(36-39). In patients with HTA and CKD who are treated with hemodialysis (HD) or peritoneal dialysis (to regimes of 3 times a week, 5-6 hours) was found in a significant improvement of HTA and improvement of left ventricular hypertrophy and decrease the prevalence of mortality. [27.28).As mentioned above, experimental evidence have clearly demonstrated that in patients with CKD HTA due to salt retention and excess water in the body appears as a result of increased peripheral resistance and impact of the renin - angiotensin – aldosteron system- RAAS. There are facts verified that although renal function is saved , activation of the RAAS is an important factor in the pathogenesis of HTA in patients with polycystic kidney and is supposed that it appears as a result of vascular overload from permanent growth of cysts (40-42).The nature of renal defects which are responsible for excretion of sodium inappropriate,or factors that mediate the subsequent increase of peripheral resistance are yet unkonown.Critical role of enlargement of the extracellular fluid volume in patients with CKD and HTA with frequent manifestations on the cardiovascular system has the influence of ultra filtrationtoo,hypernatremia,and the amount of excess of salt in body.The positive balance of salt is dominant ,but not the only factor in the genesis of hypertension in patients with CKD. A health care provider diagnoses high blood pressure when multiple blood pressure tests—often repeated over several visits to a health care provider's office—show that a systolic blood pressure is consistently above 140 or a diastolic blood pressure is consistently above 90. Health care providers measure blood pressure with a blood pressure cuff. People can also buy blood pressure cuffs at discount chain stores and drugstores to monitor their blood pressure at home.

II.THE AIM OF THIS RESEARCH

The aim of this research is to verify the impact of HTA in the rate preventing the progress of the rapid progression of CKD and of CKD process and the manifestations of HTA on the appearance treatment of arterial hypertension (HTA) treated in the of cardiovascular diseases (CVD) . This research also aims the Department of Internal Diseases in Special Hospital of detection of positive effects and impact of ACE inhibitors in Nephrology and Hemodialyse ,, Vita Medical Group of Tetova".

III. Methodology and materials

On the prospective cohort study (,, cross-section ")were total values obtained from examined parameters.Patients with HTA and included N0 = 120 (of whom 66 were male with an average age IRK treated with ACE inhibitors in Department of Internal of: 58.60± 14:00)while 54 were female with an average age of: Diseases in Hospital of Tetova and in Special Hospital of 56.00±12.50).In the study there was also a control group who had Nephrology and Hemodialyse ,, Vita Medical Group of Tetova".We N^{O}-120 healthy individuals (66 male and 54 female with an devided the patients according to the level of hypertension average age of 55.80 ± 12.60)that served for comparing the
,according to criteria report of VII të JNC-Joint National Committe serum,,uricacid,electrolytes,profile of lipids for total lipids(TL), total on Prevention Detection , Elevation Treatment of High Blood cholesterol (CHT), triglycerides(TG),HDL-ch,LDL-ch with intending Pressure year 2003.At examined patients we did examination of to verify their impact on the presentation of arterial hypertension proteinuria, the presence of urea in serum,creatinine in as complementary factors in the display the etiology of CKD.

Table number.1: Presentation of patients by gender, age average and control group ± SD

Gender	Total number N^{o}= 120(100%)	Average age	Control group
Male	66 (55 %)	57.40± 11.00	56.80 ± 12.40
Female	54 (45 %)	56.80±12.00	58.00 ± 11.80

The average age of male patients was 57.40±11.00 while the female gender was-56.80±12.00 ,the difference of average age between male and female according to statistics is not significant with p = 0.005 , which indicates for a homogeneous groups (table nr. 1) .

In table No. 2 , there are identified normal and pathological values of albumin and protein.

Values:	Microalbuminuria	Proteinuria
M= 17-250 mg/L	M < 18.60mg/L	M > 270.0
F < 25 mg/L	F 28-360 mg/L	F= 365.0mg/L

IV. RESULTS

The results of measurements obtained are presented in tables and graphs .
Table nr.3 The definition of the progression,remission, and regression of chronic nephropathymanifested by proteinuria

Parameters	Progression	Remissoin	Regression
Proteinuria	>1.8 g/24 hours	< 1.0 g/24 hours	<0.30 g/24 hours
Grade of FG	LowFG	FG stabil	High FG i
Kidney structure	High FG	FG stabil	Improved FG

Table number 4 : Presentation of average values of patients with acquired HTA of total- (N^{o} -120) for Total Lipid parameters

Parameters	Number of patients	Average ± SD
LT	120	6.40 ± 1.20
TG	120	3.40± 1.80 ↑↑
ChT	120	5.2 ± 2.00 ↑
HDL-ch	120	1.00 ± 0.80↓
LDL-ch	120	4.90 ± 1.80↑↑

In the table number 4 is noted that in the examined patients there is a significant increase with p < 0.0001 membership of LDL - ch factions , CHT , and TG , while a decrease in a significant difference with p < 0.0001 for HDL-ch.with referent values of the lipids

.Table nr. 5 : Presentation of proteinuria values of 120 patients (66 male , 54 female) received by patients before use and after use of ACE inhibitors of 20 mg and values of the controller group of 120 healthy individuals .

	Proteinuria before the therapy with ACE inhibitor from 20mg	Proteinuria after the therapy of 12 months with ACE inhibitor	Controller Gr. N^{O}-120
Male N^{O}=66	>3.40 g/24 hours↑↑	1.20 g/24 hours ↓↓	< 0.4 g/24 hours
Female N^{O}=54	> 3.20 g/24 hours↑↑	1.22 g/24 hours ↓↓	

Table 6.Division of patients (NO = 120) of the HTA examined by the degree and the report for VII of JNC (Joint National Committe-2003).

Category of hypertension	Male N^{o}= 66	Female N^{o}=54
High HTA	26	18
HTA first degree easy	10	13
HTA second degree average	12	8
HTA third degree heavy isolated systolic	8	9
HTA isolated systolic	10	6

Table number 7. Values earned for GFR * ml / min / 1.73m2 by Cockroft& Gault formula after ACE inhibitor therapy after 6 months

Values of HTA before th	M=66	F=54	Therapy with ACE inhibitor 20 mg	GFR * Before therapy	Values of GFRand HTA after 8 monthstof using ACE inhibitors from 20 m
Dangerous HTA mmHg	28	21	2x1 plus diuretic	GFR-20.40	GFR-27.30↑; TA=150/95 mmHg
Very high HTA 180/110	17	14	2x1 plus diuretic	GFR-40.60	GFR-54.50 ↑; TA=140/90 mmHg
High HTA -160/100 mm	12	12	2x1	GFR-65.20	GFR-78.20 ↑; TA=135/90 mmHg
Easy high HTA -145/90	9	7	1x1	GFR-70.00	Gfr-87.00; TA=130/80↑ mmHg

V. DISCUSSION

Chronic kidney disease (CKD) is defined as persistent kidney damage accompanied by a reduction in the glomerular filtration rate (GFR) and the presence of albuminuria. The prevalence of CKD has steadily increased over the past two decades, and was reported to affect over 13% of the U.S. population in 2004. In 2009, more than 570,000 people in the United States were classified as having end-stage renal disease (ESRD), including nearly 400,000 dialysis patients and over 17,000 transplant recipients. A patient is determined to have ESRD when he or she requires replacement therapy, including dialysis or kidney transplantation. The rise in incidence of CKD is attributed to an aging populace and increases in hypertension (HTN), diabetes, and obesity within the U.S. population. CKD is associated with a host of complications including electrolyte imbalances, mineral and bone disorders, anemia, dyslipidemia, and HTA. It is well known that CKD is a risk factor for cardiovascular disease (CVD), and that a reduced GFR and albuminuria are independently associated with an increase in cardiovascular and all-cause mortality.HTA has been reported to occur in 85% to 95% of patients with CKD (stages 3–5).The relationship between HTN and CKD is cyclic in nature. Uncontrolled HTN is a risk factor for developing CKD, is associated with a more rapid progression of CKD, and is the second leading cause of ESRD in the U.S.A.Arterial hypertension (HTA) remains the most common cardiovascular manifestation during the IRK .On the terminal phase of uremia known as comes to

hyperhydration,respectively increases the volume of extracellular fluid which results in HTA and edema syndrome.HTA during IRK often is of volumetrically type even if sometimes it may be as a result of other mechanisms such as during hypernatremia ,disorders of the renin angiotensin – anldosteron system etc.Patients with HTA and CKD are potential candidates with a high level of cardiovascular disease (CVD) compared with the general population and in the terminal phase is more than required treatment with hemodialysiswith the purpose of normalization of HTA and reduction of cardiovascularconsequences ,with this also will decrease the mortality rate (50-6 % as a result of CVD (31).All the instructions by many national associations (JNC and report of -Joint National Committe on Prevention Detection, Elevation Treatment of High Blood Pressure - 1993), European Society of Hypertension (ESH 2003) and European Society of Cardiology-ESC 2003 K / DOQI- Kidney Disease Outcomes Quality Initiative) on prevention,early diagnosing, evaluation, and early treatment of CKD and HTA recommend that the purpose of treatment to be:systolic blood pressure <130 mmHg while diastolic = 80 mmHg. In prevention of progress of CKD in patients with HTA except the normalization of HTA it is also needed the evaluation of proteinuria and HTA correction.Several studies have documented that patients with HTA and CKD(especially in patients> 70 years old with CKD might cause high risk to cardiovascular diseases especially to suffer from acute myocardial infarction if systolic blood pressure decreased <120 and diastolic <80 mm Hg. (34). The double therapy with ACE inhibitors and ARBs) of HTA in patients with CKD affects in reduction of proteinuria a higher degree ,but there are no verified and documented studies that double medication can impact on the preservation of renal function, or the prevention of cardiovascular injuries, compared with therapy ACE inhibitors combined with any diuretic (which affects handling overload volume or hypercalemia. For more adequate treatment of the HTA in patients with CKD we always must take in consideration the nature of basic kidney disease.The purpose of the treatment with ACE inhibitors or ARBs should aim a pressure <130/80 mm Hg while the blood pressure of <140/90 mm Hg is acceptable for a large number of patients but with other forms of CKD. Double-triple treatment of HTA should generally be avoided.Studies on HTA treatment of patients with CKD are controversial and still it is not known exactly what level should go down arterial pressure that kidney to be maximally protected from its impact.Uncertainty of mentioned postulates also exists about the quantitative relationship between blood pressure levels and progressive renal failure. Treatment of HTA and normalization of hyperlipidemia has shown positive effects on slowing the progress of CKD and reducing hypercreatinemia in patients who take carefully and in time the antihypertensive therapy while preserving the values of pressure from 120 ... 130/85 mm Hg (values preferred for patients with renal impairment).Except in the slowdown of CKD pace its normalization significantly affects in the prevention od cardiovascular disease (acute myocardial infarction, angina pectoris congestive heart failure, cerebrovascular stroke etc.)Last years in the prevention of progress of CKD and glomerular filtration increase in patients with CKD and HTA important role has also shown restriction of protein consumption , which with a more rigorous diet affect in slowing the rhytm of CKD process.Similar results are observed in hypertensive patients with CKD with a minimum dosage of an antihypertensive before sleep.These results together with evidence that verify conclusions of many scientists on positive correlation of salt consumption with HTA in patients with malignant hypertension and to patients with CKD from strong reasons (for reducing consumption of salt as a mechanism to slow the pace of progress of diabetic nephropathy.The consumption of daily protein should not past a value of 0.5 - 0.6 g / kg / day .. Over diseases of the aforementioned ACE inhibitors are used as qualitative choice andconsidering that some ACE inhibitor have shown high positive effects on other groups of drugs in slowing the pace of progress of CKD and reduce the morbidity and mortality of patients.Prevention of progress of CKD requires treatment of arterial hypertension (HTA) also arterial pressure in patients with proteinuria of 0.25-1.0 g / 24 hours should be ≤ 130/80 while the of patients with proteinuria ≥ 1.0 g / 24 org / 24 hours should be ≤ 125/75 mmHg. Proteinuria also shows the efficiency of the action and impact of ACE inhibators while as parameter serves us eliminate the reduced protein in urine during 24 hours.We can say that the regression is achieved when through urine the loss of proteins is <0.3 g / 24 hours, and when the glomerular filtration rate (FG) is improved.Accurate mechanisms of kidney damage in patients with hypertension still remain unclear.Two additional pathogenic mechanisms in the end finish in kidney fibrosis by starting with macrosystem and microvascular changes,disorders of auto-adjustment of intraglomerular pressure mediated by hyper-filtration.Hyperfiltration leads to trans glomerular protein loss which promote the releasing of cytokines and the growth factor of mesangial cells andcylindrical epithelial cells causing vascular lesions. The prevalence of HTA which is counted as main risk factor of cardiovascular related illness (CVD) occurs in 28% of the adult population.Iin the US from HTA suffer 37-39% while in the world from HTA total of 1 million residents.It is supposed that the prevalence of appearance of HTA is increasing,it will also increase the prevalence of CKD,cardiovascular diseases and cerebral stroke .In basic way it defines the loss of quantity of kidney tissue and leads into glomerular filtration rate (FG) .Exact mechanisms of kidney damage in patients with hypertension still remain unclear.Two additional pathogenic mechanisms in the end finish in kidney fibrosis ranging changes in the macrosystem and microvasculare , auto-regulation disorders of capilaro- intraglo-merular pressure mediated from hyperfiltration. Hyperfiltra-tion leads to transglomerular loss of protein that stimulates release of cytokines and the growth factor from mesangial cells and epithelial cells causing vascular lesions.The prevalence of HTA which is counted as main risk factor of cardiovascular related illness (CVD) occurs in 28% of the adult population. In the US from HTA suffer more than 37-39% while in the world from HTA suffer total of 1 million people.It is supposed that the prevalence of appearance of HTA is increasing also will increase the prevalence of of CKD, cardiovascular diseases and cerebral insults (35-37)..It defines in a fundamental manner the kidney tissue loss and leads to progression of CKD.Hypertension of volumetrically type that occurs in uremia beings also the presentation of cardiovascular complications with hypertensive cardiomyopathy with left ventricular hypertrophy.HTA damages in silent way kidney causing nephro atherosclerosis which leads up to CKD terminalis when the only treatment is with HD intermittent.HTA is present in 80% of cases in patients with CKD.HTA incidence varies by type of underlying primary renal disease for example.Patients with chronic glomerulonephritis have higher incidence of HTA compared with patients with interstitial tubules (eg pielonephritis). Therefore, to treat HTA with a better effect should be considered the important role of Na balance in the pathogenesis of HTA.In general kidney diseases accompanied with HTA such as glomerulonephritis (GMN),accompanied by detention type of Na, while kidney disease who do not have the HTA frequent events (illnesses tubulointersticiale),are not accompanied by detention type of Na .In fundamental illnesses of IRK associated with HTA exists an inability of kidney in elimination of the right amount of Na.Clinical symptoms of HTA that accompanies end stage renal diseas do not differ from those with HTA with other etiology. Of other symptoms there are : heart enlarge, at the end of the eye are observed hypertonic changes (fondus hypertonicus)with different degrees depending of duration of hypertension.The treatment of HTA is of great importance to preserve residual renal function and prevent damage of blood vessels.Important symptoms and complications which appear during chronic renal insufficiency are:congestive cardiac insufficiency which appears during the excessive consumption of salt.It is proved from the fact that during use of HD and ultra filtration (extraction of fluids) congestive cardiac insufficiency condition is improved very good.Hypertension in

patients with renal damages is presented in 80%of them.This phenomenon is in positive correlation with the progressive loss of kidney function respectfully of nephrons.In appearance (36, hypertensive syndrome affect several mechanisms: water electrolyte disorders and disorders of the relationship between the amount of sodium and renineangiotensinealdosteron system,function disorder of "autoregulation" and peripheral resistance,excessive consumption of salt,dyslipidemiaetc .HTA remains a complication of permanent malignant,and most often it is the type of voluminous hypertension even if it can be with other origin and mechanism. Diagnosis is based not only on the absolute values of the arterial pressure but also on its accompanying symptoms as they are :Cefalea , nausea,votimsyst, confusion,mitralinsuficiency,pulmonary edema etc.The aforementioned effects grow if arterial hypertension is accompanied by hyperlipidemia, diabetes,hyperfibrinogenemia and MIA syndrome (Malnutritio-infl-Matio-Atheroskle -rosis) .As arterial hypertension is considered systolic level of 140 mmHg and diastolic pressure 90 mmHg.Numerous studies have shown that the increase in peripheral vascular resistance is closely related to renin angiotensin-aldosterone system and distorted reports between concentrations of calcium and parathyroid hormone (HPT) also disorders time vasodilatators ,kinins,prostaglandins,and disorders of neuromuscular system in level of arterioles.There are a number of studies on the effects and action of antihypertensive drugs in patients with HTA and effect of ACE-inhibitors of 10 mg or 20 mg or ACE inhibitor combined with a diuretic but ACE inhibitors further remain as one of the favorite drugs during hypertensive crisis and treatment of HTA in patients with CKD.Drugs of this group their hypotensive action develop by blocking the effect of dipeptide carboxy oxidase and increasing the level of obstruction conversion of Angiotensin I(AI) to angiotensin-II,slowing converting bradykinin and other quinine and reduce the activity of sympathetic with what they reduce and prevent negative effects (44, renal hemodynamic hypertension.The duration of hypertension also seems to have an effect on the reduction of renal activity.Except HTA and hypercholesterolemia also unbalanced diabetes is presented as additional and dominant factor in the progress and the rapid pace of CKD.In our work we verified that the quality of treatment,adequate and timely HTA with ACE inhibitors in patients with CKD is closely correlated with the slowdown in the pace of progress of the disease by reducing proteinuria and side effects of HTA to CVD.Treatment of HTA in patients with CKD should be started in the early stages of the disease.Except the drug therapy in preventing and slowing CKD also has an important role compliance dietary measures (reduced consumption of excess fluids and salt,correcting dyslipidaemia, regulation of sugar values in diabetics, adhering to hypoproteineanic diet of phosphates,limiting Ca.In patients with CKD and HTA restriction of proteins in diet helps reducing the retencion of substances that come from increased catabolism of proteins in body.For this reason daily consumption of protein must not exceed the extractive capacity of urea from the kidneys . Daily intake of protein in grams is calculated by multiplying it three times with the amount of urea in the urine of 24 hours.During consumption of food in patients with CDK is recommended intake of the essential amino acids of which 1/3 should be of animal origin.With the progress of CKD the amount of protein consumption should be gradually and continuously reduced. Daily protein consumption should not pass a value of 0.5 - 0.6 g / kg /day.According to facts and studies made about the treatment of HTA in patients with ESRD all groups of antihypertensive drugs are effective but the last years more favorable effects in treatment of HTA and low side effects have shown ACE inhibitors and combined medications that block aT-1 receptors, angiotensin II[the so called ARB : Xalec + HCT (Candesartan 8 mg + 12.5 hidrohlorothiazid), Losartan, Valsartan, Candesartan, Cossaar, Telmisartan, Eprosartan, Irbesartan,))] with what modified the effect of the system renin-angiotensin-aldosteron (RAAS), which during the HTA is disturbed (37, 39). There have been many studies on the positive effects of various antihypertensive,of their actions and effects and all have verified that ACE inhibators angiotensin-converting-enzyme more preferred for the treatment of HTA with renal origin and in patients with CKD.The different ways in correcting the HTA and crises in patients with esrd include the most important part of prevention in the quickly the progress of chronic renal failure .Therefore we can conclude that the treatment and normalization of HTA significantly affects reducing their effects on renal system, cardiovascular system,and use of ACE-inhibitors are indicated with minimal side effects and highly effective in the treatment of HTA and the benefits of them are that this group of drugs may be combined with calcium blocker and a large numberof diuretics.In markets there are ACE inhibators combined with duretics whose advantage is using only once a day and highly awaited effect in reducing arterial pressure.The high mortality in patients with CKD often occurs due ischemic cardiomyopathy associated with hypertesnion (40-42). It is verified that patients with uremia, the occurrence of myocardial infarction is 10 times more frequent than in patients with another primary disease.Cardiovascular diseases (CVD -infarkti of heart disease, left ventricular hypertrophy, congestive heart failure, cerebrovascular stroke)) in the form of epidemics occur in patients with CKD and HTA and are five times more frequent than people with the same sex and age from the general population who suffers from HTA but not with CKD-Fragmingham study (43).Statistical studies published in the US in 1997 on the introduction of mortality in patients with chronic renal insufficiency treated with hemodialysis showed that 53% mortality was caused due to cardiovascular disease, 16% due to infections, 4% of carcinomas and 27% from other causes in patients up to age 64 years (44,45). This renoprotection is independent of its blood pressure lowering effect. Further studies are needed to determine if aliskiren, HTA alone or in association, is able to reduce hard renal and cardiovascular end-points in CKD patients. The utilization of alfa(α)-adrenergic agents or the potent vasodilator minoxidil is only justified if blood pressure control was still not achieved with the previous described classes of anti-hypertensive drugs. They are extremely potent agents but present many adverse side effects. Furthermore, minoxidil must always be associated with a Beta-Adrenergic Blocker and a diuretic in order to control the reflex tachycardia and the fluid retention induced by the former (KDOQI, 2004). Medications that lower blood pressure can also significantly slow the progression of kidney disease. Two types of blood pressure-lowering medications, angiotensin-converting enzyme (ACE) inhibitors and angiotensin receptor blockers (ARBs), have been shown effective in slowing the progression of kidney disease. Many people require two or more medications to control their blood pressure. In addition to an ACE inhibitor or an ARB, a health care provider may prescribe a diuretic—a medication that helps the kidneys remove fluid from the blood. A person may also need beta blockers, calcium channel blockers, and other blood pressure medicationsFollowing a healthy eating plan can help lower blood pressure. A health care provider may recommend the Dietary Approaches to Stop Hypertension (DASH) eating plan. DASH focuses on fruits, vegetables, whole grains, and other foods that are heart healthy and lower in sodium, which often comes from salt. The DASH eating plan:is low in fat and cholesterol,features fat-free or low-fat milk and dairy products, fish, poultry, and nutssuggests less red meat, sweets, added sugars, and sugar-containing beverages

- is rich in nutrients, protein, and fiber.

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VI CONCLUSION

Hypertension and CKD are both the chicken and the egg in this story. CKD resulting from hypertension and hypertension resulting from CKD are complex and multifactorial.Understanding the pathophysiologic mechanisms of the HTA is necessary to manage more qualitative hypertension in order to reduce the negative effects and impact of the trailer in the pace of progress of the ESRD.Patients with HTA and ESRD have often need for two, three , until four antihypertensive medicaments to achieve the goals of treatment and to minimize their risk of side effects of HTA.In addition , changes in food,lifestyle and physical activity should always be considered as a vital component of any regime and antihipertensivetreatment.In conclusion we can suggest and recommend that the treatment of arterial hypertension in early stages (in particular,in patients with chronic renal failure) should be the main objective of doctors in the management and treatment hypertension with the only purpose of prevention and preventing the impact of its own performance and accelerated pace of chronic renal failure progress. A better understanding of the physiopathology mechanisms is imperative to improve our treatmentstrategies and reduce renal and cardiovascular adverse events Multiple guidelines discuss the importance of lowering blood pressure (BP) to slow the progression of renal disease and reduce cardiovascular morbidity and mortality.However, in order to achieve and maintain adequate BP control, most patients with CKD require combinations of antihypertensive agents; often up to three or four medication classes may need to be employed.

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