

CHRONIC KIDNEY DISEASE (CKD) IS A GRADUAL, PROGRESSIVE AND IRREVERSIBLE LOSS IN RENAL FUNCTION (GLOMERULAR FILTRATION RATE) OVER A PERIOD OF THREE TO SEVERAL MONTHS.

IT IS CHARACTERIZED BY GRADUAL RISE IN SERUM CREATININE, UREA, URINE ACID, ETC. CAUSED BY PROTEIN METABOLISM, CHANGES IN VOLUME AND BODY FLUIDS AND ELECTROLYTES COMPOSITION, AS WELL AS HORMONAL IMBALANCE.

## MMA CLINIC FOR NEPHROLOGY

Military insured and patients with civilian health insurance coverage and GP's referral can seek an appointment scheduled via the Appointment Lines, every day from 07.30 a.m. to 03.30 p.m.

All citizens with civilian health insurance coverage who use the MMA service at their request are able to schedule the appointment Monday through Thursday, from 03.30 p.m. to 07.30 p.m.

### APPOINTMENT SCHEDULING / CONTACT INFORMATION AT:

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### MILITARY MEDICAL ACADEMY

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CHRONIC  
KIDNEY  
DISEASE



The main causes of chronic kidney disease in our territory and world-wide are: diabetes mellitus (28% of cases), high blood pressure (25%), glomerulonephritis (21%), autosomal dominant polycystic kidney disease (4%) along with the other causes registered in 23% of cases. Number of Serbian patients suffering from CKD increases annually, while over 4500 patients follow haemodialysis treatment.

Recent professional guidelines classify the severity of chronic kidney disease in five stages according to the estimated values of glomerular filtration rate (GFR).

#### Stages of chronic kidney disease

Stage	Glomerular filtration rate (GFR) (ml/min/1.73 m <sup>2</sup> )	Description	Prevalence %
1 <sup>st</sup>	≥90	Kidney damage with relatively normal GFR	3,3
2 <sup>nd</sup>	60-89	Mild reduction in GFR with kidney damage	3,0
3 <sup>rd</sup>	30-59	Moderate reduction in GFR	4,3
4 <sup>th</sup>	15-29	Severe reduction in GFR	0,2
5 <sup>th</sup>	<15	End stage renal disease (ESRD)	0,2

CKD is initially without specific symptoms and is generally only be detected as decrease of creatinine clearance in the urine (below 30 ml/min.), associated further with poor working ability, iron deficiency anemia (caused by reduction in Erythropoietin) and metabolic acidosis (due to accumulation of sulfates, phosphates, uric acid etc.). Gastrointestinal tract symptoms including nausea, vomiting and diarrhea occur when creatinine decreases to 15

ml/min. whilst neurological and vascular complications in case of 10 ml/min.

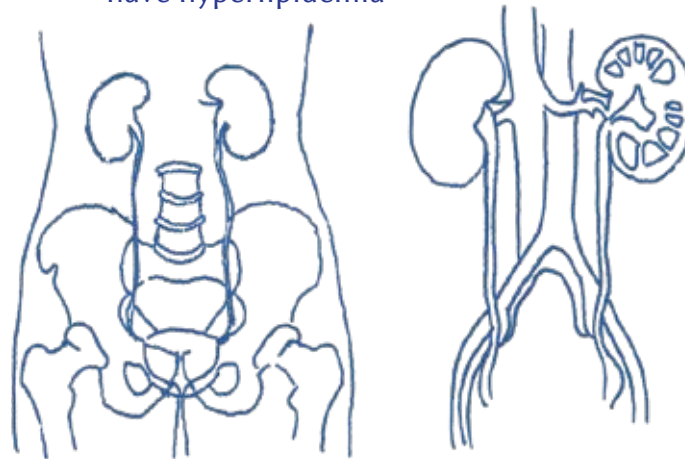
Symptoms and signs of chronic kidney disease may be individual and proceed from all body organs and systems.

#### Chronic Kidney Disease Risk Factors

Beside high blood pressure and diabetes mellitus as main causes of CKD, other conditions that affect the kidneys are autoimmune disorders, system infections, urinary tract calculi, inadequate use of nephrotoxic drugs, benign prostatic hyperplasia, cardiovascular diseases, long-term use of nonsteroidal anti-inflammatory drugs (NSAIDs), ageing kidneys, obesity, high levels of cholesterol and triglyceride.

Obligatory screening and monitoring should be carried out in case you:

- have diabetes
- have high blood pressure
- have a family history of kidney failure
- are older
- have hyperlipidemia



#### CKD Prevention and Treatment

The goal of therapy is to slow down the progression of CKD. Control of blood pressure and treatment of the original disease are the broad principles of management.

You also need to make changes in your diet, including: eating a low-protein diet (diet B40), restricting salt and potassium, correcting your overweight, avoiding food which contains preservatives, eating food enriched with iron and monitoring the intake of calcium and phosphorous. It is important to limit the use of nonsteroidal anti-inflammatory drugs (NSAIDs), avoid nephrotoxic drugs, as well as to do adequate preparations of imaging-related medications and adapt drug concentrations to GFR values. Smoking cessation is obligatory.

Taking renoprotective drugs as ACE inhibitor and AT blocker is also recommended.

General practitioner and nephrologist should carry out regular medical controls, while laboratory parameters that should be measured and controlled are: serum creatinine, complete urine examination, proportion albumin/creatinine or proteinuria estimated value in 24 urine example. Ultrasonography screening of the kidneys is equally required.

Severe CKD (stage 5) requires renal replacement therapy, which may involve a form of dialysis, but ideally constitutes a kidney transplant. Dialysis treatment may include haemodialysis or dialysis through the peritoneal membrane.

