WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 8.084
Volume 11, Issue 1, 155-160. Case Study ISSN 2277– 7105

ISCHEMIC CARDIAC DISEASE AND CHRONIC KIDNEY DISEASE, CASE REPORT

[1,2*]Goran Topić and [1,2]Vlado Đajić

[1]University Clinical Center of Republic of Srpska, Banja Luka.

[2]University of Banja Luka, Faculty of Medicine.

Article Received on
13 November 2021,

Revised on 04 Dec. 2021,
Accepted on 25 Dec. 2021

DOI: 10.20959/wjpr20221-22724

***Corresponding Author**
Dr. Goran Topić
University Clinical Center of Republic of Srpska, Banja Luka.

ABSTRACT

Myocardial revascularization is one of the important aspects of the treatment of patients with impaired renal function. Unfortunately, the revascularization procedure itself, whether it is a percutaneous approach using a potentially nephrotoxic contrast agent, or a surgical approach and associated periprocedural hemodynamic perturbations, can worsen existing or cause new irreversible kidney damage. Therefore, we report case of subacute myocardial infarction with chronic kidney disease stage three of renal failure of the third degree

KEYWORDS: Myocardial revascularization, chronic kidney disease.

INTRODUCTION

The association between chronic kidney disease (CKD) and cardiovascular mortality is known and proven. Namely, cardiovascular causes of mortality are more common in patients with CKD compared to the general population, as well as the prognosis of patients diagnosed with cardiovascular disease and CKD is significantly worse than in patients without this associated morbidity. To define CKD, it is necessary to determine glomerular filtration rate (GFR), because the serum creatinine value itself can be used only for a rough assessment of renal status, given that the value itself depends on a number of factors such as body weight, age, sex, muscle mass mass, nutrient intake, etc. The most commonly used formula for calculating GFR is the Cockroft-Gault method, and normal values for a young man are approximately 100–130 mL / min / 1.73 m2, and for a young woman 90–120 mL / min / 1.73 m2. CKD itself is classified into 5 groups depending on the severity of the disease and the reduction of GFR, and as a significant reduction, from a prognostic point of view, a moderate reduction with GFR less than 60 mL / min / 1.73 m2 is taken. In addition to monitoring serum

creatinine, a new, more sensitive marker of renal function, Cystatin C, can be used, which has been found to have an earlier increase in case of damage and to be somewhat more specific in patients over 75 years of age. Proper regulation of blood pressure (BP) reduces mortality both from ischemic cardiovascular disease itself and from the progression of kidney disease. There are a number of clinical guidelines that have defined the optimal therapeutic range of CP values to be achieved when prescribing antihypertensive drugs, but there is no clear agreement between them. Three randomized studies (MDRD, REIN-2, AASK) examined the effect of intensive CP regulation in patients with normal CP regulation in patients with CKD, with or without diabetes. In patients with CKD and hypertension, the goal is to keep SKP below 140 mmHg (120-130 mmHg), as well as diastolic below 80 mmHg. Randomized studies and meta-analyzes that analyzed cardiovascular outcomes in patients with CKD / proteinuria treated with drugs that block the renin-angiotensin system showed a reduction in both CV mortality and CKD progression, as well as a reduction in proteinuria in both diabetic and non-diabetic nephropathy., noting that the effect was much greater in patients with proteinuria. According to the existing evidence, ACEI / ARB therapy is recommended in patients without diabetes and hypertension if urinary protein excretion is ≥ 1 g / day, and if hypertension is present, then the limit is lower (0.5 g / day). It is important to point out that there is no difference in the choice of ACEI as well as ARB, nor does ARB have an advantage over ACEI or that a combination of ACEI / ARB is justified. Considering the economic aspects, it is recommended to first introduce ACEI, and only then, as a replacement for intolerant patients, to prescribe ARB therapy. Elevated lipid levels have been highlighted in epidemiological studies as one of the predisposing factors for CKD, and experimental models have shown the harmful effects of high levels of triglycerides and LDL cholesterol on mesangial cells, leading to their proliferation and generalized atherosclerotic damage. Statin administration alone has no adverse effects on glomerular filtration and renal function. Dyslipidemia in CKD has its specifics that depend primarily on the type of kidney disease and stage of the disease (diabetic nephropathy, dialysis, terminal CKD), and are most often initially elevated triglycerides, while LDL cholesterol, although not high, changes the ratio of its fractions and there much more atherogenic, leading to accelerated atherosclerosis. In general, pharmacokinetics should be taken into account in patients with CKD and ischemic cardiac disease and non-renal elimination drugs should be used, ie the dose of renal elimination drugs (eg atenolol, sotalol, ACE inhibitors) should be adjusted. It is necessary to adjust the dose based on creatinine clearance, or replace them with drugs that are predominantly excreted by the liver (propranolol, metoprolol, nebivolol, carvedilol,

fosinopril, etc.). Rosuvastatin is contraindicated if creatinine clearance is less than 30 ml / min. Contrast-induced nephropathy (CIN) is defined as a postprocedural increase in serum creatinine (sCr) of 25% or absolutely more than 0.5 mmol / L, relative to the preprocedural value, in the first 5 days of the procedure. Although the damage is usually reversible and the GFR returns to its original value within 2 weeks, permanent damage can also occur. Since there is no absolutely effective procedure to avoid this complication, it is recommended to identify patients at increased risk of this complication (pre-existing mild renal failure, diabetes mellitus, age, low EF, dehydration, use of non-photographic drugs, hypotension, heart failure, etc.), and then the application of preventive measures that should be adjusted to the risk and condition of the patient. The most important and most effective measure is certainly the limitation of the amount of contrast so that the ratio of the amount and GFR does not exceed 3.7 or that the maximum dose does not exceed 4ml / kg.1.

CASE PRESENTATION

A 53-year-old patient with CKD since 2016, stage 3. Hypertonic since 2012. Problems present at the admission from 20.07.2019. year, chest pain, cough. Current therapy: Enap HL 20 / 12.5mg 1x1, Paravano 20mg 1x1, Cordipin R 20mg 0-0-1. Laboratory findings: CK (s) 183; CRP (s) 1.2 ... 5.5; hs Troponin I stat 21.60; Erythrocytes 4.82; Leukocytes 7.47; Hemoglobin 153; Hematocrit 0.46; PLT 267; Bilirubin, total (s) 12.0; Bilirubin, conjugated (s) 5.0; Glucose (s) 5.5; AST (s) 30; ALT (s) 53; Cholesterol (s) 6.6; HDL-cholesterol (s) 1.0; LDL-cholesterol (s) 5.5; Triglycerides (s) 2.0; Urea (s) 11,2; Creatinine (s) 172; Potassium (s) 4.2; Inorganic phosphates (s) 0.80; Sodium (s) 136; Chlorides (s) 101;

Echocardiography: The left atrium is of normal dimensions with no visible foreign masses and spontaneous contrast. The mitral valve is sclerotic, no vegetation is observed on the cusps which are of normal motility; MR 2+ is registered. The left ventricle is of normal dimensions in diastole and systole, normal wall thickness, significantly reduced global systolic function, EFLK 15-20% due to loss of segmental kinetics: entire anterior wall, septum, inferior wall and entire apex of the heart (functional mediobasal posterior and lat. Wall).The aortic valve is trifoliate, the velum is thin, separations and coaptions are preserved; no vegetation is observed.The aorta at the root and ascending part is of normal diameter. The normal velocity of the anterograde flow is registered through the valve. The right ventricle is of normal dimensions, preserved contractility of the free wall, TAPSE 27 mm. TR 1-2 +, SPDK 40 mmHg is registered. The pulmonary artery is of normal dimensions. VCI is max. measured

21mm, normally collapsible in inspiration. There is no effusion in the pericardial sac. Pleural effusions are not registered. Conclusion. Ischemic CMP significantly reduced EF. Coronary angiography: Left coronary atrium (LCA): (radial approach, EBU4) main stem (LM) is of normal deviation and direction, slightly uneven lumen. It branches to LAD, Cx and minor RM. The LAD is of normal deviation and direction, narrowed proximally by 50%, occluded medially by 100%, showing the medio-distal middle from the isocolateral from D1. Cx is of normal deviation and direction, slightly uneven lumen. OM is narrowed by a maximum of 40%. Right coronary artery (RCA): (JR4) is of normal deviation and direction, uneven lumen, narrowed ostially 50%, narrowed medially 60%, narrowed distally in front of the branch 90%. Gives strong V, PD and PL, is dominant.

DISCUSSION

Myocardial revascularization is one of the important aspects of the treatment of patients with impaired renal function. Unfortunately, the revascularization procedure itself, whether it is a percutaneous approach using a potentially nephrotoxic contrast agent, or a surgical approach and associated periprocedural hemodynamic perturbations, can worsen existing or cause new irreversible kidney damage. Based on the results of clinical studies, the optimal range of values for systolic blood pressure as well as for the lower limits for diastolic blood pressure above and below which there is an increased risk of adverse cardiovascular events as well as CKD progression. Because CKD is not recognized as a specific cardiovascular risk factor, recommendations for primary statin therapy in patients with CKD do not differ from the general population, while in secondary prevention in patients with CKD and previous CV events, their use is mandatory. regardless of blood lipid levels.

CONCLUSION

The patient was hospitalized in the Cardiology Clinic of the Department of Interventional Cardiology from the Emergency Center under the clinical picture of subacute myocardial infarction in order to perform coronary angiography. Electrocardiographic on admission sinus rhythm, fr. 50 / min, minimum ST elevation in DII, DIII, aVF; negative T in V1-V3. Coronary angiography is performed which shows: LCA: LM is a slightly uneven lumen giving LAD, Cx and minor RM. The LAD is narrowed proximally by 50%, occluded medially by 100%, showing the medio-distal middle from the isocolateral of D1. Cx is a slightly uneven lumen. OM is narrowed by a maximum of 40%. RCA: narrowed ostially 50%, narrowed medially 60%, narrowed distally in front of the fork 90%. Gives strong V, PD

and PL, is dominant. Tentamen PCI-LAD: guiding EBU4 6F positioned (with good support) in the LCA ostium. The coronary wire Whisper MS (even with the support of the Maverick 1.5x15mm balloon) fails to find any indentation, "stump", canal or occluded LAD. The procedure passed without complications, the patient was transferred to the ward for further observation. The patient is released home hemodynamically and rhythmically stable, with recommendations for further hygienic dietary regime and aggressive drug therapy. Contrast-induced nephropathy (CIN) is the third most common cause of iatrogenic-induced acute renal failure in hospital settings, after surgery and hypotension. Since there is no absolutely effective procedure to avoid this complication.

REFERENCES

1. Chen YY, Wang JF, Zhang YJ et al. Optimal strategy of coronary revascularization in chronic kidney disease patients: a meta-analysis. *Eur J Intern Med.*, 2013.
2. Manske CL, Wang Y, Rector T et al. Coronary revascularisation in insulin-dependent diabetic patients with chronic renal failure. *Lancet*, 1992.
3. Rahman M, Xie D, Feldman HI et al. Association between chronic kidney disease progression and cardiovascular disease: results from the CRIC Study. *Am J Nephrol*, 2014.
4. Badve SV, Roberts MA, Hawley CM et al. . Effects of beta-adrenergic antagonists in patients with chronic kidney disease: a systematic review and meta-analysis. *J Am Coll Cardiol*, 2011.
5. Cai Q, Mukku VK, Ahmad M. Coronary artery disease in patients with chronic kidney disease: a clinical update. *Curr Cardiol Rev.*, 2013.
6. Berger AK, Duval S, Krumholz HM. Aspirin, beta-blocker, and angiotensin-converting enzyme inhibitor therapy in patients with end-stage renal disease and an acute myocardial infarction. *J Am Coll Cardiol*, 2003.
7. Negri AL. Fibroblast growth factor 23: associations with cardiovascular disease and mortality in chronic kidney disease. *Int Urol Nephrol*, 2014.
8. Rabbat CG, Treleaven DJ, Russell JD et al. Prognostic value of myocardial perfusion studies in patients with end-stage renal disease assessed for kidney or kidney-pancreas transplantation: a meta-analysis. *J Am Soc Nephrol*, 2003.
9. Gansevoort RT, Correa-Rotter R, Hemmelgarn BR et al. Chronic kidney disease and cardiovascular risk: epidemiology, mechanisms, and prevention. *Lancet*, 2013.

10. Patel AD, Abo-Auda WS, Davis JM et al. Prognostic value of myocardial perfusion imaging in predicting outcome after renal transplantation. *Am J Cardiol*, 2003.
11. Manjunath G, Tighiouart H, Coresh J et al. Level of kidney function as a risk factor for cardiovascular outcomes in the elderly. *Kidney Int.*, 2003.
12. Anavekar NS, Pfeffer MA. Cardiovascular risk in chronic kidney disease. *Kidney Int.*, 2004.
13. Coronary vascular dysfunction and prognosis in patients with chronic kidney disease, J Am Coll Cardiol Img, 2012; 5.
14. K.M. Eggers, B. Lindahl, J.J. Carrero, M. Evans, K. Szummer, T. Jernberg, Cardiac troponins and their prognostic importance in patients with suspected acute coronary syndrome and renal dysfunction Clin Chem., 2017; 63.