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Opis przypadku pacjenta z ostrą niewydolnością nerek oraz chorobą układu sercowo-naczyniowego po 65 roku życia

Case report of a patient with acute renal failure and cardiovascular disease after 65 years of age

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Słowa kluczowe: Ostra niewydolność nerek, przewlekła niewydolność serca, zespół sercowo-nerkowy, geriatryka, studium przypadku.

Key words: acute renal failure, chronic heart failure, cardiac-renal syndrome, geriatrics, case report.

Abstrakt

Wstęp. Ostra niewydolność nerek (AKI, acute kidney injury) to zespół kliniczny obciążony dużą śmiertelnością. Jest to zespół kliniczny polegający na gwałtownym upośledzeniu pracy nerek. Skutkiem jest zatrzymywanie w organizmie produktów przemiany materii i niemożność zachowania prawidłowej homeostazy wodno-elektrolitowej i kwasowo-zasadowej. Przewlekła niewydolność serca jest znacznym problemem klinicznym, ekonomicznym i społecznym, i pomimo ciągłego rozwoju medycyny, częstość występowania tej choroby wciąż rośnie. Osłabione, niewydolne serce nie jest w stanie dostarczyć narządom odpowiedniej ilości krwi, tlenu i substancji odżywczych. Efektem jest szybkie męczenie się, osłabienie siły mięśniowej i zawroty głowy. Choroby nerek oraz sercowo-naczyniowe wpływają na siebie nawzajem i wzmagają swój przebieg, przez co pogarszają stan pacjenta. Bardzo ważna jest okresowa kontrola funkcji nerek u pacjentów z chorobami sercowo-naczyniowymi, ponieważ udowodniono, że występowanie chorób nerek u tych pacjentów zwiększa ryzyko zgonu.

Opis przypadku. Pacjent, lat 78, wielokrotnie hospitalizowany w Klinice Geriatrii, Klinice Kardiologii, Klinice Nefrologii z powodu duszności, przewlekłej niewydolności mięśnia sercowego, obrzęków kończyn dolnych. Stopień samodzielności ograniczony, pacjent chodzi z asystą, zamieszkuje z rodziną/osobą bliską. Główne dolegliwości chorego: narastające obrzęki kończyn dolnych, bóle lewej stopy, nudności, wymioty, kołatanie serca, duszność wysiłkowa i spoczynkowa bez dolegliwości stenokardialnych. Choroby współistniejące: cukrzyca insulinozależna typu 2 (z nieokreślonymi powikłaniami), otyłość, miażdżyca

uogólniona, nadciśnienie tętnicze, przewlekła niewydolność serca typu II wg skali NYHA. Wada serca w postaci niedomykalności zastawki dwudzielnej i trójdzielnej, nadciśnienie płucne, napadowe migotanie przedsionków, przebyty zawał mięśnia sercowego. Pacjenta zakwalifikowano do leczenia metodą hemodializy, następnie wrócono do leczenia zachowawczego, zastosowano ścisłą dietę. Zastosowanym leczeniem uzyskano poprawę ogólnego stanu pacjenta i wypisano ze szpitala w stanie ogólnym stabilnym.

Wyniki. Częste i regularne badanie stanu zdrowia chorego z zespołem sercowo-nerkowym, postęp choroby i zdolność tolerowania leczenia mogą być pomocne w leczeniu i przedłużeniu życia chorego. Istotne jest monitorowanie funkcji nerek u osób z chorobami układu krążenia.

Abstract

Introduction. Acute kidney injury (AKI) is a clinical syndrome with high mortality. It is a clinical syndrome consisting in rapid impairment of kidney function. The result is retention of metabolic products in the body and the inability to maintain normal water-electrolyte and acid-base homeostasis. Chronic heart failure is a significant clinical, economic and social problem, and despite the continuous development of medicine, the incidence of this disease is still increasing. A weakened inefficient heart is not able to supply the organs with the right amount of blood, oxygen and nutrients. The effect is fast fatigue, weakness of muscle strength and dizziness. Kidney and cardiovascular diseases affect each other and increase their course, which worsens the patient's condition. Periodic monitoring of renal function in patients with cardiovascular disease is very important because it has been proven that the occurrence of kidney disease in these patients increases the risk of death.

Case report. Patient, 78 years old, hospitalized many times in the Geriatrics Clinic, Cardiology Clinic, Nephrology Clinic due to shortness of breath, chronic myocardial insufficiency, edema of the lower limbs. The degree of independence is limited, the patient walks with assistance, lives with a family / significant other. Main ailments of the patient: increasing swelling of the lower limbs, left foot pain, nausea, vomiting, palpitations, effortlessness and rest dyspnea without stenocardial complaints. Comorbidities: Type 2 insulin-dependent diabetes mellitus (with unspecified complications), obesity, generalized

atherosclerosis, hypertension, chronic NYHA type II heart failure. Cardiac defect in the form of mitral and tricuspid regurgitation, pulmonary hypertension, paroxysmal atrial fibrillation, myocardial infarction. The patient was qualified for hemodialysis treatment, then returned to conservative treatment, followed a strict diet. The applied treatment improved the general condition of the patient and was discharged from the hospital in a stable general condition.

Results. Frequent and regular examination of a patient's condition with cardiac-renal syndrome, disease progression and ability to tolerate treatment can be helpful in treating and prolonging the patient's life. It is important to monitor kidney function in people with cardiovascular disease.

Introduction. Acute kidney injury (AKI) is a clinical syndrome with high mortality. In hospitalized patients, the incidence of this disease is estimated at 10-24% and mortality in adults is 23% [1, 2]. It is a clinical syndrome consisting in rapid impairment of kidney function, which occurs with or without oliguria. The result is retention of metabolic products in the body and the inability to maintain normal water-electrolyte and acid-base homeostasis [3]. The accepted criterion for the diagnosis of AKI is an increase in serum creatinine. However, this is not a sufficient test because low creatinine levels do not correlate with glomerular filtration rate (GFR) due to the high functional reserve in a healthy patient. In initial kidney damage, the secretion of creatinine by proximal tubular cells increases, while the opposite is true in previously damaged kidneys, where a slight further decrease in GFR is associated with a disproportionately high jump in creatinine concentration. This situation often occurs in the elderly [3, 4]. Chronic heart failure is a significant clinical, economic and social problem, and despite the continuous development of medicine, the incidence of this disease is still increasing. In heart failure, the body loses the ability to pump blood efficiently, the chambers cannot properly contract and relax. The result is less blood flow through the heart. Less blood is pumped through the chambers, more is left in the heart [5]. Heart failure may have a slight effect on the patient's well-being if it is a mild type of disease, however, severe failure may prevent normal household activities and may even lead to death [5, 6]. A

weakened inefficient hearth is not able to supply the organs with the right amount of blood, oxygen and nutrients. The effect is fast fatigue, weakness of muscle strength and dizziness. Characteristic of the disease is shortness of breath, edema and fluid accumulation in the pleural cavity or abdominal cavity (improper removal of waste products causes excess fluid) [5]. Chronic heart failure affects about 1-2% of the adult population in developed countries and over 10% for people over 70 years of age. An increase in the incidence of heart failure has been noticed in recent years, which may be associated with the aging of the population and an increase in the number of people with pre-existing cardiovascular risk factors. The annual incidence of heart failure is from 5 to 10 people per 1000 inhabitants [5]. Kidney diseases have a lot in common with cardiovascular diseases, because in patients with renal failure there is overhydration, electrolyte and acid-base metabolism disorders, metabolic, immune and inflammatory disorders, which leads to aggravation of atherosclerotic lesions, which turn to heart failure, hypertension and ischemic heart disease. Atherosclerosis and hypertension can also lead to kidney damage. Renal failure may also be a complication of heart failure - interaction: cardiac-renal syndrome [7, 8]. Kidney and cardiovascular diseases affect each other and increase their course, which worsens the patient's condition. All cardiovascular risk factors such as diabetes, obesity, smoking, dyslipidemia and hypertension cause both heart failure and renal failure [8, 9]. Periodic monitoring of renal function in patients with cardiovascular disease is very important, as it has been proven that the occurrence of kidney disease in these patients increases the risk of death [8, 10].

Case report. Patient, 78 years old, hospitalized many times in the Geriatrics Clinic, Cardiology Clinic, Nephrology Clinic due to shortness of breath, chronic myocardial insufficiency, edema of the lower extremities. The degree of independence is limited, the patient walks with assistance, lives with a family / significant other. Main ailments of the patient: increasing swelling of the lower limbs, left foot pain, nausea, vomiting, palpitations, effortlessness and rest dyspnea without stenocardial complaints. Comorbidities: Type 2 insulin-dependent diabetes mellitus (with unspecified complications), obesity, generalized atherosclerosis, hypertension, chronic NYHA type II heart failure. Cardiac defect in the form of mitral and tricuspid regurgitation, pulmonary hypertension, paroxysmal atrial fibrillation, previous myocardial infarction, past right coronary angioplasty with stent implantation, past coronary artery bypass grafting and mechanical aortic valve implantation, implanted dual chamber heart implant Medtronic Relia REDR01 due to 3rd degree atrioventricular block,

history of electrical cardioversion due to atrial fibrillation, history of exacerbation of heart failure, replacement of stimulator with CRT-P resynchronization stimulator CRT-P SJM ALLURA QUADRA, history of cerebral ischemia and cerebellar syndrome, cholecystolithiasis, hypothyroidism , renal cysts, normotensive hydrocephalus, cervical spondylosis, osteoarthritis of the right hip joint, left hip replacement arthroplasty. A history of pneumonia, overdose of acenocoumarol (INR 11.7), which he received due to the presence of artificial aortic valve and paroxysmal atrial fibrillation and right forearm hematoma, previous fracture of the left IX rib after falling. The patient has been hospitalized many times since 2012 due to shortness of breath, dizziness, deterioration of exercise tolerance, exacerbation of heart failure and atrial fibrillation. In February 2019, the patient was admitted to the clinic as a matter of urgency due to exacerbation of chronic kidney disease to stage 5, with an increase in creatinine from 1.88 mg/dl (03.2018) to 10.65 mg/dl and a decrease in estimated glomerular filtration rate from 35 ml/min/1.73m² to 5 ml/min/1.73m², as well as with accompanying non-breath acidosis in the course of dehydration. Laboratory tests shown an increase in the concentration of infection markers and uric acid (9.3 mg/dl) - colchicine was included. After the treatment, loose stools, nausea and vomiting occurred several times (for this reason the patient was consulted at the Infectious Provincial Hospital). On admission to the clinic, the patient was in a moderate general condition due to dehydration. During hospitalization, an attempt was made at conservative treatment (intravenous irrigation with physiological saline solution with bicarbonate supplementation), blood and urine cultures were collected, empirical antibiotic therapy with ceftazidime was used. Due to the lack of effectiveness of conservative treatment, the patient was qualified for hemodialysis treatment. Due to coagulation disorders, 3 units of fresh frozen plasma were transfused, after expressing the patient's consent, a temporary dialysis catheter was placed and after control radiological assessment (correct position of the catheter) hemodialysis was performed. After the surgery, in the following days the patient did not require anesthetic replacement and he was returned to conservative treatment, the dialysis catheter was removed. In the next days of hospitalization, due to vomiting and gastrointestinal obstruction found in X-ray examination, a strict diet was used (no indications for surgical treatment were found). In abdominal X-ray control (due to elevated cholestasis results) no obstruction was found. An abdominal ultrasound examination did not show cholecystitis and biliary tract inflammation. In laboratory tests, the patient had reduced red blood target, hemoglobin, hematocrit, mean

corpuscular hemoglobin concentration, lymphocyte and glomerular filtration rates. Elevated mean corpuscular volume, red cell distribution width, red cell distribution width - standard deviation), total bilirubin, uric acid, C-reactive protein, glucose, sodium, creatinine, alanine aminotransferase enzymes, aspartate ammonitransferase, alkaline phosphatase, gamma-glutamyltranspeptidase and D-Dimers. The applied treatment improved the general condition of the patient and decreased the creatinine concentration to 1.5 mg/dl (GFR 42 ml/min/1.73m²). The patient was discharged from the hospital in a stable general condition.

Discussion. More and more clinical cases show an absolute relationship between heart failure and kidney disease [11]. The concept of cardiovascular syndrome (CRS) was established in accordance with an agreement at a conference in Venice [12, 13]. The above clinical case is a classic example of chronic CRS, since chronic heart failure has resulted in the development of renal failure. Naturally, cardiovascular risk factors such as diabetes, obesity, smoking, hypertension also cause CKD. Such a correlation occurred in the 78-year-old patient described - type 2 diabetes, obesity, generalized atherosclerosis, hypertension caused the occurrence of renal failure, similarly to the 76-year-old patient described by E. Zbroch et al. [12]. A study by Gibson et al. Showed that with a decrease in glomerular filtration rate (GFR) by every 10ml/min/1.73 m², a 16% increase in stroke risk is recorded [14, 15]. In the described patient, in a 3-fold study, the decrease in GFR was even 25 ml/min/1.73 m² (risk of stroke 40%). At the last described hospitalization there was no stroke, but earlier (2013) he had cerebral ischemia and cerebellar syndrome, which probably occurred, among others due to a decrease in GFR.

Final conclusions. The term cardiac-renal syndrome (CRS) is used to emphasize the co-occurrence of cardiac and renal dysfunction and the impact of one organ on another. Frequent and regular examination of a patient's condition with cardiac-renal syndrome, disease progression and ability to tolerate treatment can be helpful in treating and prolonging the patient's life. It is important to monitor kidney function in people with cardiovascular disease. The cooperation of a cardiologist and a nephrologist is increasingly important to properly treat patients with CRS.

Conflict of interest. None

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