ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

Study of the Quality of Life Characteristics of Patients with Ischemic Heart Disease, Chronic Kidney Disease, and Type 2 Diabetes Mellitus (Literature review)

G.B.Shoymurodova, D.K.Nuritdinova, S.K Nuritdinova
Tashkent Medical Academy

Annotation

This compilation provides a comprehensive overview of the quality of life characteristics of patients dealing with ischemic heart disease (IHD), chronic kidney disease (CKD), and type 2 diabetes mellitus (T2DM). It highlights the interconnected nature of these chronic conditions, emphasizing that patients with CKD and T2DM experience high residual cardiorenal morbidity and mortality, as well as an increased risk of cardiovascular events. Key findings from recent studies indicate that chronic conditions like CKD significantly deteriorate patients' quality of life (QoL) due to complications such as cardiovascular morbidity, fatigue, and anemia.

Cardiac rehabilitation (CR) emerges as a critical component for secondary prevention in IHD patients, demonstrating effectiveness in reducing recurrent cardiovascular events and improving mortality rates while enhancing patients' ability to return to work. With international guidelines recommending comprehensive CR programs, the necessity for assessment and improvement of patient engagement in CR is highlighted, especially in the context of Poland, where referral and participation rates remain low. Moreover, medication adherence is identified as a crucial factor influencing health outcomes, with significant variability among CKD patients, further reinforcing the need for patient-centered care approaches.

The annotation also delves into the prevalence of T2DM, indicating its status as a leading global public health issue, particularly in Turkey and Iran, where significant segments of the population are affected. It stresses the importance of self-management practices and education to enhance patients' capabilities in managing their conditions, thereby improving their overall health and QoL.

Further discussing psychosocial aspects, the text notes the prevalence of depression and anxiety in CKD patients, emphasizing the necessity for timely interventions that can mitigate these mental health concerns and enhance treatment outcomes. Overall, this collection of information underscores the need for integrated care strategies that encompass physical, psychological, and educational support to improve the quality of life for individuals suffering from IHD, CKD, and T2DM

Key words: ischemic heart disease, chronic kidney disease, type 2 diabetes mellitus, quality of life, medication adherence, cardiac rehabilitation, cardiovascular morbidity, physical health, psychosocial support, chronic conditions, patient education, self-management, depression, anxiety, health outcomes, healthcare access, comorbidities, risk factors, renal failure, metabolic disorders, patient-centered care, lifestyle modifications, systematic interventions, healthcare disparities, integrated care.

Patients with chronic kidney disease (CKD) and type 2 diabetes have high residual cardiorenal morbidity and mortality despite current therapies. The risks of progression towards kidney failure and cardiovascular events increase with disease severity and CKD stage. Compared with patients who have advanced kidney disease and are more likely to progress to dialysis, those with better-preserved

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

kidney function still face significant risks of cardiovascular morbidity, such as heart failure, myocardial infarction (MI), stroke, or death from cardiovascular causes.

Evidence suggests that overactivation of the mineralocorticoid receptor (MR) leads to inflammation and fibrosis in the heart, kidneys, and vasculature, where the MR is extensively expressed. This overactivation can drive the progression of CKD and cardiovascular disease. Finerenone is a novel, selective, nonsteroidal mineralocorticoid receptor antagonist (MRA) that blocks MR-mediated sodium reabsorption and overactivation, demonstrating anti-inflammatory and anti-fibrotic effects in preclinical models of kidney and cardiovascular disease.

The FInerenone in reducing kiDnEy faiLure and disease prOgression in Diabetic Kidney Disease (FIDELIO-DKD) and FInerenone in reducing cArdiovascular moRtality and mOrbidity in Diabetic Kidney Disease (FIGARO-DKD) phase III trials are complementary in nature due to their similar designs and endpoints. Together, they represent the largest cardiorenal outcomes program in CKD among patients with type 2 diabetes to date. Both trials investigated the efficacy and safety of finerenone, on top of maximum tolerated renin-angiotensin system inhibition, on kidney and cardiovascular outcomes in patients with mild-to-severe CKD.

In FIDELIO-DKD, finerenone significantly reduced the risk of the primary kidney composite outcome and the key secondary cardiovascular composite outcome in patients predominantly with stage 3–4 CKD, who also presented with severely increased albuminuria and type 2 diabetes. In FIGARO-DKD, finerenone significantly reduced the risk of the primary cardiovascular composite outcome in a broader patient population than that studied in FIDELIO-DKD (including patients with stage 2–4 CKD and moderately increased albuminuria or stage 1–2 CKD with severely increased albuminuria).

The FIDELIO-DKD trial was designed to detect treatment effects of finerenone on kidney failure endpoints, whereas the FIGARO-DKD trial aimed to assess the effects on a primary cardiovascular composite endpoint. To improve the ability to detect a treatment effect on kidney failure outcomes, patients with a higher urine albumin-to-creatinine ratio (UACR) were preferentially selected in the FIDELIO-DKD trial. In contrast, FIGARO-DKD aimed to provide a greater kidney failure-free interval to assess treatment effects on cardiovascular events, selecting a population with moderate UACR and a wider range of estimated glomerular filtration rates (eGFR).

Thus, the two trials complemented each other with some overlap in the populations studied, and their similar designs and overlapping research sites allowed for the comparison and pooling of their results [1].

Cardiac rehabilitation (CR) is one of the core elements of secondary prevention in patients with ischemic heart disease (IHD), aiming to improve risk factors, reduce hospital readmission, and produce a more favorable sur vival outcome. Two large meta -analyses of 34 and 18 randomized controlled trials have shown that CR reduces recurrent cardiovascular events and improves mortality rates in patients with myo cardial infarction. Moreover, CR has also been shown to improve patients' quality of life and ability to return to work quickly.

International guidelines recommend that all patients who have had a planned revascularizа tion procedure or have acute coronary syndrome (ACS), chronic stable angina, or heart failure should engage in a CR program to reduce subse quent events. Moreover, recently revised practice guidelines urge for a "comprehensive rehabil itation" program covering a range of aspects: ex ercise training aimed at improving clinical pro f iles (optimization of blood pressure, lipid and glucose levels, and weight), healthy heart educa tion (appropriate diet and smoking cessation), and psychological

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

counseling to reduce stress and improve quality of life. These comprehensive efforts are intended to foster better cardiovascu lar risk management than could be achieved by supervised exercise alone. In Poland, cardiovascular disease is one of the major causes of mortality, accounting for 46% of total deaths in 2010, with nearly half of these attributable to IHD. To address this serious situation, healthcare experts have been trying to pro mote a preventive approach through CR and life style changes. In addition, there has been an increase in the efforts to manage care for patients with IHD, including increased access to CR pro grams.8 To our knowledge, there are no multi center studies to investigate disparities in referral rates and participation in CR and the effectiveness of CR in Poland. However, referrals for CR programs and the im pact of such programs in the real world have been suboptimal9 both in Europe and the USA. A summary of a large cross -sectional survey carried out by the pan -European group, EU ROASPIRE (European Action on Secondary and Primary Prevention by Intervention to Reduce Events), reported that CR referral rates and hence participation rates in Europe remain low. Thus, there is the need for urgent action to increase re ferral and enrollment rates in CR programs. T his study assessed the effectiveness of CR in a patient population enrolled in a CR pro gram in 14 cardiology centers from 4 different regions of Poland, all of which participated in the EUROASPIRE [2].

According to the global implementation plan of the World Health Organization (WHO) on preventable and controlla ble noncommunicable diseases, cardiovascular disease, can cer, chronic respiratory tract diseases, and diabetes are the primary causes of deaths worldwide, with incidences of 48%, 21%, 12%, and 3.5%, respectively (WHO, 2019). Cardiovascular disease is the leading cause of morbidity andmortality inTurkey. According tothe2009CardiacDis eases and Risk Factors in Turkish Adults report, coronary artery disease (CAD) is the largest cause of death in Turkey (Onat, 2009). CAD negatively affects an individual's course of life, maintenance of health, and progression of disease owing to its accompanying physical, psychological, social, and eco nomic problems (Hassani et al., 2010; Sevinç & Akyol, 2010). In addition, this disease reduces functional skills and self-care abilities (Hassani et al., 2010), prevents completion of self-care responsibilities, and disrupts quality of life (Dilek et al., 2010; Durmazetal.,2009;Norrisetal.,2009). Studies on CADhaveidentified a high prevalence of modifiable risk factors and determinedthat effective risk factor management maysubstantially reduce the paceofmorbidityandmortality and, eventually, improve health and quality of life (Durmaz et al., 2009; Saffi et al., 2014; Sevinç & Akyol, 2010). Education is crucial to increasing awareness to protect and help individuals maintain health and make necessary changes inlifestyle (Hall, 2013; Taylor et al., 2011). Previous studies have revealed that providing education to patients with CAD improves self-care agency (Hassani et al., 2010), quality of life (Küçükberber et al., 2011), and self-care informa tion as well as motivation and skill levels (Mohammadpour et al., 2015)

In nursing practice, the use of theory helps systematize care planning, organizes professional knowledge into a con ceptual framework, and guides nurses on how and why cer tain steps must be taken, thereby increasing the effectiveness of services by providing cost-effective care (Johnson, 2015). A crucial issue in improving quality of life in patients with chronic illness is ensuring patient participation in their treat ment and care (Johnson, 2015). In this context, a basic prin ciple of self-care is patient participation and assumption of responsibility (Hassani et al., 2010). Self-care, defined as per forming individual duties to protect life, health, and well being, develops gradually through communication, culture, education, and interaction (Berbiglia & Banfield, 2014; Fawcett &DeSanto-Madeya, 2013; Johnson, 2015). Orem's self-care deficit nursing theory (SCDNT) considers each

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

individual as a self-care agent with the necessary ability to perform self-care activities individually (Berbiglia & Banfield, 2014; Fawcett & DeSanto-Madeya, 2013; Johnson, 2015). In promoting the health status of patients with CAD, it is critical to effectively combat interchangeable risk factors, in crease awareness, and improve self-care agency and quality of life (Butcher & Castelluci, 2011; Hassani et al., 2010). Therefore, training that is basedonOrem'sSCDNThasbeen [3].

The implantable cardioverter-defibrillator (ICD) is the mainstay of therapy for the prevention of sudden cardiac death in patients after myocardial infarction presenting with recurrent ventricular tachyar rhythmias.1,2 Although lifesaving, ICD shocks are pain ful and associated with depression, anxiety, worsening of heart failure, and higher mortality.3–9 Catheter ab lation of scar-related ventricular tachycardia (VT) can reduce arrhythmia recurrence and the number of ICD shocks.10,11 Moreover, elimination of VT after catheter ablation may be associated with lower mortality and slower heart failure progression than a less effective ablation followed by VT recurrences.12 Although VT ablation is typically performed after multiple ICD in terventions,13–15 3 recent randomized, controlled trials explored preventive ablation before the first ICD shock in patients with ischemic cardiomyopathy with docu mented VT16–18; however, the optimal timing of VT abla tion remained unknown. In the BERLIN VT trial (Preventive Ablation of Ven tricular Tachycardia in Patients With Myocardial Infarc tion), we examined whether a preventive VT ablation strategy before ICD implantation, aimed at preventing ICD shocks for VT, improves a composite end point of all-cause death and hospitalization for heart failure or arrhythmia compared with the commonly used deferred ablation strategy after multiple ICD interventions [4].

Coronary artery disease (CAD) is the leading cause of death worldwide.1 Over the past 30 years, advances in interventional and secondary preventative cardiology have dramatically improved survival for people with CAD.2 3 In high- income countries, living with CAD, as a long- term condition, is now common. Of the 200 000 people who have a myocardial infarction annually in the UK, 7 out of 10 survive. In 2018, there were over 900 000 survivors of myocardial infarction and 2.3 million people living with CAD in the UK.4 This longevity after myocardial infarc tion represents a substantial and increasing burden on healthcare resource. There is a need for medical and lifestyle interventions that improve quality of life (QoL), maintain physical and psychosocial independence, and reduce long- term health and social care utilisation. Cardiac rehabilitation (CR) has long been considered integral to the management of CAD.5 Exercise training in conjunction with cardiovascular risk factor management, psychosocial support and behaviour change (‘comprehensive’ CR) are the core compo nents of a complex health and lifestyle intervention, which is unreservedly advocated in inter national guidelines and policy.6 7 Multiple meta- analyses incorporating trials spanning 1975–2018 reported favour able effects on functional capacity, hospital readmissions and mortality [5].

Medication adherence is the primary determinant of treatment success, yet 43% to 78% of people receiving medications for chronic diseases are nonadherent to medical treatment. The reported prevalence of medication nonadherence in chronic kidney disease (CKD) also varies considerably; 12%–53% in stage 3 to 4 CKD and 21%–74% in end-stage kidney disease (ESKD). Medication adherence is particularly relevant in people with CKD, given its potential importance in slowing disease progression and, therefore, improving health outcomes. Poor adherence to antihypertensive medications in CKD, reported in nearly one-third of patients, is associated with uncontrolled hypertension. Research also indicates that nonadherence to cardiovascular medications at the predialysis stage is an independent predictor of post-dialysis mortality in people with advanced CKD. Patient-centred outcomes, such as health-related quality of life (HRQOL), are important measures

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

that capture patients' perspectives and experiences about their functionality and wellbeing. These outcome measures are particularly relevant in patients with advanced CKD, as they inform treatment goals and modalities. Nevertheless, there is limited data on patient-centred outcomes in people with advanced CKD, particularly in those not receiving renal replacement therapy. More importantly, the relationship between HRQOL and medication-related factors, such as medication burden and adherence, is relatively under-examined in this patient group. The actual and perceived medication burden can be assessed in di erent ways, including the complexity of medication regimens and the number of medications used. Medication regimen complexity and the number of medications would be expected to influence adherence, although the findings on this subject are not consistent. In patients with CKD, the association between medication regimen complexity and adherence is inconclusive. Moreover, despite the high medication burden in patients with advanced CKD, evidence is lacking on medication-related factors and patient-centred outcomes in predialysis CKD. This study aimed to (i) identify factors associated with medication burden (perceived and actual), (ii) examine the association between medication burden (actual and perceived) and adherence in adults with predialysis CKD, (iii) examine the association between HRQOL and actual medication burden, and (iv) evaluate the relationship between medication adherence and change in HRQOL over time [6].

Depressive symptoms are among the most frequent co-morbidity among patients with CKD. Early diagnosis of depression is often missed, owing to the similarities between depressive symptoms and uremic symptoms. This might explain the lower prevalence of depressive disorder in the early stages of CKD. Depression can be affected by some socio demographic factors as well as by individual general condition, and its association with suicide, fatigue, sleep disorder and pain in ESRD patients. In these patients, depression is up to three times more prevalent than in the general population. The precise prevalence of anxiety disorders in haemodialysis patients is unclear, but estimates have ranged from approximately 12% to 52% in various studies. In a recently published Indian study, the prevalence of depression and anxiety was found to be 61.3% and 28% respectively. As anxiety, depression and related factors are prevalent in patients with CKD undergoing hemodialysis, they significantly affect the sufferer's quality of life and disease outcome. Medical co-morbid conditions such as, hypertension and diabetes mellitus, are known contributors to CKD. Hence, primary care physicians have a crucial role in both managing the early stages of CKD as well as in providing comprehensive care along with nephrologists in the advanced stages of this disease. Furthermore, brief and timely psychosocial interventions even by primary care physicians can improve overall treatment outcomes. Studies assessing psychiatric morbidity in CKD patients undergoing haemodialysis are few in India and especially in western Rajasthan. Hence, the present study was planned for evaluation of depression, anxiety and related socio-demographic factors in these patients [7].

Chronic kidney disease (CKD) is a progressive condi tion defined by the presence of kidney damage and decreased level of kidney function, most commonly expressed in terms of estimated glomerular filtration rate (eGFR). CKD has a global prevalence of 11–13%, with estimates ranging from 3.9 to 15.3%, de pending on geographical region. The lowest estimates have been reported for Europe and the highest for China. In 2015, it was estimated that more than 20 million people in the USA had CKD, with the ma jority having stage 3 disease, and only a small propor tion at stage 4 or 5. Anemia, a decrease in the hemoglobin (Hb) carried within red blood cells, is a common complication of CKD and is associated with debilitating symptoms, in cluding fatigue, weakness, shortness of breath, dizzi ness, headaches and depression [8].

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

The ability to manage one's own health is a key determi nant in improving long-term health outcomes and quality of life (QoL) for a variety of chronic health conditions. The concept of patient activation describes the knowl edge, skills and confidence to manage one's own health and healthcare. The most widely used tool for assessment of activation is the Patient Activation Meas ure (PAM). The PAM categorises individuals into one of four activation levels ranging from Level 1 (passive and lacking knowledge and skills) to Level 4 (active, well informed and competent). Higher levels of activation are often associated with lower healthcare costs and improved health outcomes. Individuals described as being highly activated are also more likely to partici pate in healthy lifestyle behaviours and access health services including check-ups, screening and immunisa tions. Patient activation is increasingly acknowledged to underpin self-management. In order to effectively manage long-term conditions such as chronic kidney disease (CKD), individuals are required to take an active role in their health using skills developed through infor mation and support obtained from various educational and healthcare resources. In CKD, poor engagement with self-management behaviours are associated with poor clinical outcomes such as progression to end-stage kidney disease (ESKD), cardiovascular disease, and death. Patient activation has been used to tailor self-man agement support interventions to improve behavioural and health-related outcomes for patients with CKD. The aim of increasing activation levels has also been incorporated into policies involving CKD populations [9].

In parallel with economy development, life standards im provement, lifestyle/diet changes and urbanization, noncommunicable diseases like diabetes mellitus (DM) are the most important public health problems worldwide. The prevalence of DM is increasing in the developed and developing countries. WHO reported that the number of diabetic patients in the world has increased from 110 million in 1994 to 240 million in 2010 and it is estimated to raise at 300 million in 2025. In Iran, the prevalence of DM is relatively high and has been estimated by various studies 12.4% in individuals aged 15–75, 12.6% in aged group 40–64, and 24.5% in the people aged 40–80years old. As with any other chronic disease, DM is associated with many personal, familial, social and financial issues and even higher mortality rate. Problems such as increased blood glucose, dietary and exercise limitation repeatedly demand for insulin injection, musculoskeletal complications, phys ical disabilities, sexual dysfunction and vascular disorders are some examples which negatively affect the lives of pa tients with DM. Moreover, job loss, frequent hospitalization, higher de mand for medical and patient care, indirect costs related to early death, reduced social and familial interactions, and worsening in lifestyle are some of the major prob lems which affect the familial, social and economic sta tus of these patients [10].

Diabetes is considered one of the most important health prob lems of the 21st century. Diabetes and its complications are currently among the leading causes of death in many coun tries. In 2017, 424.9 million people aged 20–79 years and 451 million people aged 18–99 years were living with diabetes. By 2, 045, 629 million people aged 20–79 years and 693 million people aged18–99years are expected to suffer from diabetes worldwide (Cho et al., 2018). In a study performedon 26,499 individuals aged 20 years and older in Turkey, it was determined that the incidence of diabetes has reached 13.7%, the rate of increase for diabetes is 90%, and the incidence of impaired glucose tolerance has reached 7.9%(Satmanetal., 2013).On the basis of these es timates, Turkey will be among the top 10 highest populations of persons with diabetes worldwide in 2035 (International Diabetes Federation, 2015). It is important to prevent complications of diabetes to de crease the burden of this disease on individuals and society (Turkish Ministry of Health, Public Health Institution, 2014). Patients with diabetes must monitor and manage their dis ease to prevent complications. However,

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

VOLUME-5, ISSUE-1

patients often face obstacles to successful monitoring that may hinder optimal disease management (Boussageon, Gueyffier, & Cornu, 2014; Song & Kim, 2009). Decreasing disease symptoms, emergency admissions, and hospitalizations; reducing disease related physiological and psychological effects; preventing de pendence on caregivers; and enhancing quality of life may be achieved through effective and sustainable disease manage ment (Demirağ, 2009; Haskett, 2006). If obstacles to self-management are not identified, noncompliance with recommended self-care treatments and complications suchashypoglycemia and impairment in health and quality of life may result (Munshıetal., 2013). Reducing obstacles to coping with disease in patients with diabetes may improve management efficacy and health-related outcomes [11].

Type 2 diabetes mellitus (T2DM) is a chronic metabolic disorder in which the pancreas fails to secrete adequate insulin to maintain glucose homeostasis. Blood glucose levels are normally controlled by a series of anabolic and catabolic hormones, primarily insulin and glucagon, respectively. It is evident that T2DM poses an extensive economic burden and negative consequences to health and healthcare systems. In 2014, an estimated 422 million people suffered from diabetes mellitus. This equates to approximately 1 in 11 adults worldwide, 90% of whom suffer from T2DM. The prevalence has nearly quadrupled since 1980 and current projections suggest that 642 million people will suffer from diabetes by 2040. This is mainly attributed to rapid urbanisation, sedentary lifestyles and poor dietary habits. In 2013, the Global Burden of Disease study found that diabetes was the 9th most common cause for reduced life expectancy. Furthermore, 5 million deaths were attributed to diabetes in 2015, equating to 1 death every 6 s. The estimated global economic burden of diabetes mellitus in 2015 was over 1.2 trillion USD. A longitudinal cohort study that followed 117629 female nurses over 20 years found that participants with T2DM at baseline had a 5-times greater risk of myocardial infarction and cerebrovascular disease when compared to those without diabetes. Additionally, diabetes was the leading cause of blindness in individuals aged 20-74 years in 2011 and it was responsible for 44% of end-stage kidney disease and 60% of non-traumatic lower limb amputations. Diabetes can also cause neuropathy through vascular disruption and direct neuronal injury. This may manifest as peripheral neuropathy affecting the extremities or autonomic neuropathy with organ dysfunction [12].

ISSN: 2582-4686 SJIF 2021-3.261, 2022-2.889, 2023-5.384, 2024-6.875 ResearchBib IF: 9.948 / 2024

THE MULTIDISCIPLINARY JOURNAL OF SCIENCE AND TECHNOLOGY

VOLUME-5, ISSUE-1

References

1. Agarwal R., Filippatos G., Pitt B., Anker S.D., Rossing P., Joseph A., Kolkhof P., Nowack C., Gebel M., Ruilope L.M., Bakris G.L. Cardiovascular and kidney outcomes with finerenone in patients with type 2 diabetes and chronic kidney disease: the FIDELITY pooled analysis // Diabetes Care. – 2022. – Vol. 45, № 4. – P. 476 [1].

2. Sinnadurai S., Sowa P., Jankowski P., Gąsior Z., Kosior D.A., Haberka M., Czarnecka D., Pająk A., Setny M., Jamiołkowski J., Łapińska M., Kamiński K.A. Effects of cardiac rehabilitation on risk factor management and quality of life in patients with ischemic heart disease: a multicenter cross-sectional study // Journal of Cardiopulmonary Rehabilitation and Prevention. – May 31, 2021. – P. 617-618 [2].

3. Impact of training based on Orem's theory on self-care agency and quality of life in patients with coronary artery disease // Journal of Nursing Research. – December 2020. – Vol. 1, № 1. – P. 6 [3].

4. Willems S., Tilz R.R., Steven D., Kääb S., Wegscheider K., Gellér L., Meyer C., Heeger C.-H. Preventive or Deferred Ablation of Ventricular Tachycardia in Patients With Ischemic Cardiomyopathy and Implantable Defibrillator (BERLIN VT) A Multicenter Randomized Trial // European Heart Journal. – March 31, 2020. – P. 1058 [4].

5. McGregor G., Powell R., Kimani P., Underwood M. Does contemporary exercise-based cardiac rehabilitation improve quality of life for people with coronary artery disease? A systematic review and meta-analysis // Heart. – November 29, 2019. – P. 2 [5].

6. Tesfaye W.H., McKercher C., Peterson G.M., Jose M., Zaidi S.T.R., Wimmer B.C. Medication adherence, burden and health-related quality of life in adults with predialysis chronic kidney disease: A prospective cohort study // Nephrology. – 2020. – P. 2-3 [6].

7. Gadia P., Awasthi A., Jain S., Koolwal G.D. Depression and anxiety in patients of chronic kidney disease undergoing haemodialysis: A study from western Rajasthan // Indian Journal of Nephrology. – 2020. – P. 4283 [7].

8. van Haalen H., Jackson J., Spinowitz B., Milligan G., Moon R. Impact of chronic kidney disease and anemia on health-related quality of life and work productivity: analysis of multinational real-world data // Clinical Kidney Journal. – 2020. – P. 2-3 [8].

9. Magadi W., Lightfoot C.J., Memory K.E., Santhakumaran S., van der Veer S.N., Thomas N., Gair R., Smith A.C. Patient activation and its association with symptom burden and quality of life across the spectrum of chronic kidney disease stages in England // BMC Nephrology. – 2022. – P. 2-3 [9].

10. Abedini M.R., Bijari B., Miri Z., Shakhs Emampour F., Abbasi A. The quality of life of the patients with type 2 diabetes using EQ-5D-5L in Birjand // Journal of Diabetes & Metabolic Disorders. – 2020. – P. 2-6 [10].

11. Fidan Ö., Takmak Ş., Zeyrek A.Ş., Kartal A. Patients With Type 2 Diabetes Mellitus: Obstacles in Coping // Journal of Diabetes Research. – August 4, 2020. – P. 4-8 [11].

12. De Groot J., Wu D., Flynn D., Robertson D., Grant G., Sun J. Efficacy of telemedicine on glycaemic control in patients with type 2 diabetes: A meta-analysis // Diabetes Research and Clinical Practice. – February 15, 2021. – P. 172 [12].