
THE PHILOSOPHICAL-MEDICAL CONTEXT OF THE QUALITY OF SENIORS’ LIFE

Peter Bačík1* and Andrea Lesková2

1 Department of Arrhythmias SÚSCCh a.s., Cesta k Nemocnici 1, 974 01 Banská Bystrica, Slovakia
2 Constantine the Philosopher University in Nitra, Faculty of Philosophy, Department of General and Applied Ethics, Hodžova 1, 949 01 Nitra, Slovakia

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Abstract

The quality and dignity of seniority in life is, unfortunately, not at the forefront of interest in today’s pragmatic society where economic performance often plays a decisive role. This is a subject whose interdisciplinary nature overlaps in particular the disciplines of Medicine, Sociology and Psychology. In the present study we base ourselves on the psychosomatic nature of man, which corresponds to the Judaeo-Christian understanding of mankind and the world. In the realm of theological anthropology we present the key role of the concept of ‘nephesh’, and from the medical point of view, we focus on the acute problem of the aging population in Central Europe - cardiovascular problems. Research is focused on the CRT method in the context of maintaining or improving the quality of life of an aging population with chronic heart disease. The result of it shows the importance of the implementation of CRT in the strategy of the care of elderly people.

Keywords: Biblical anthropology, psychosomatic unity, values, orientations, cardiac resynchronization therapy

1. Introduction

The aging population is an attendant phenomenon and a direct consequence of the demographic transition process. Therefore, the discourse about the active, successful aging and quality of seniors’ life is deepened [1]. The consequences of aging are affecting various spheres of economic and social development. This is the most evident in the areas that are directly dependent on the changing age structure of the population, such as the functioning and financing of the pension scheme as well as social and health care for elderly people. In demographic terms, the elderly population is usually defined as people aged 65 and over. In the context of care for elderly people, prolonging life strategy is gaining in importance, but it does not always mean its higher quality. The concept of quality of life is widely discussed, however relatively difficult to be defined in a clear way, whereby its interdisciplinary and multidimensionality with the spiritual element must be emphasized as well [2]. The important indicators of quality of seniors’ life are commonly self-sufficiency, autonomy, absence of disability and

*E-mail: bacik.peter@suscch.eu
pain, maintenance of social support, feeling of happiness or usefulness. Seniors naturally require increased health care. In respect of the issue in question, we pay special attention to elderly patients with chronic heart failure and to the possibility of improving their quality of life through cardiac resynchronization therapy, which is supported by relatively extensive empirical material.

2. Psychosomatic concept

Currently, there is a critical view of Descartes’ dualism, which has caused several negative consequences in Western civilization thinking. This kind of dualism is based rather on a Greek way of thinking that strives for a strict analysis of things and phenomena, leaving no sense for the whole. Neither the Hegelian concept of philosophical synthesis is relevant to the world and reality of life. Today, the dichotomic and trichotomic perception of man is overcome in modern anthropology. Exegesis of texts traditionally associated with arguments in favour of tri/dichotomy (1 Thessalonians 5.23, Hebrews 4.12), today is grasped by such hermeneutics, which perceives the whole of man as the unity of the different spheres of life of man in the sense of existence as well as medicine.

The psychosomatic concept of man represents the current challenge for interdisciplinary dialogue, especially between Medicine, Psychology and Sociology. On a deeper level of reasoning, however, the philosophical grasp of man and the theological perspective of man are the question of who is man, how he works and what the focus of his existence is and ought to be. Integrity and completeness is required not only in the psychological but also medical approach to man. It is not enough to cure only the body, but it is not enough to treat just soul and psyche. The person remains mysterious according to the Psalm 139.14: “I praise you because I am fearfully and wonderfully made; your works are wonderful, I know that full well.” Perceiving man as a psychosomatic unity results in a Biblically balanced perspective as far as regarded the nature of man and the complexity of his existence, where health and inner harmony play an integral part of shalom [3]. Many philosophers like Kierkegaard have perceived the existence of man as a complex phenomenon, while the quality of life and the dignity of the human being is made up of a social, psychological, spiritual, economic and medical dimension, while the spiritual has a particular priority in the robustness of it [4].

3. Hebrew concept

In the Judean story of the creation of man, the text in Genesis 2.7 plays a key role: “Then the Lord God formed the man from the dust of the earth and breathed into his nostrils the breath of life, and the man became a living being.” The term ‘a being’ is a translation of the Hebrew word נפש - nephesh, the meaning of which is extremely important. Though the noun refers to the essence of life, the act of breathing or taking breath - the real difficulty of this term is exposed in the inability of almost all (not just English) translations to find a
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consistent equivalent or even a small bunch of equivalents for the term like soul, self, life, person, heart, desire, feelings, emotion, appetite etc. [5]. According to rabbinical tradition the Hebrew system of thought does not include the combination or opposition of the terms ‘body’ and ‘soul’ in a dualist sense, which are really Greek and Latin in origin, but rather in a complementaristic sense, where the totality and completeness of life is at the centre of interest [6-8].

The biblical concept of creation opens a very valuable view of man in relation to himself, to society and nature. The theme of dignified life is thus the subject of a holistic approach, according to which it is not good to overlook any of the aspects that enter into this dynamic of the complex processes of creating a peaceful and happy life at any stage of man’s development or age. The theme of healing in Hebrew thinking is always associated with restoring the functionality of the system. It can be about society, family, international relations but also about personal health (Psalms 6.2, Jeremiah 17.14). The Greek word *therapeuo* (θεραπευμένῳ) is used across the New Testament (20x) in the sense of physical treatment, to bring the cure, to care for sick, to heal etc. [9]. The physical health of man has a firm place within God’s blessing and God’s purpose with man. The interdisciplinary overlap of theology and medicine has its justification in considering the dignity of an elderly person. It is surprising to what extent current knowledge of medicine and humanities is well correlated with the content of the biblical narrative. To take care of the health of seniors and cure their illness thus means directly to participate in God’s plans of love and blessing of man, since the concept of blessing (berakah – Hebrew בְּרָכָה) connotes the state of one’s prosperity or happiness.

4. Quality of life and senior age

The statistical indication of the quality of life in objectively defined areas of life usually refers to the following areas as stated by Stanek [10]: biosocial reproduction, health, work, participation in management, income, consumption, living, spatial mobility, education, culture, recreation, social communication, antisocial behaviour. It is obvious that the quality of life can be satisfactory in some areas while insufficient in others [11].

Within the modernization of society and social development, it is possible to assume that the issue of quality of life will be more closely related to issues of value orientations [12]. We have in mind the tight connection to the Maslow’s hierarchy of human needs, emphasizing in particular the need for self-actualization, self-fulfilment positioned at the top of this hierarchy. The mentioned need is connected with the evaluation of one’s own life, with its fullness giving meaning to our life. As Žilínek points out, starting point and the basis of the meaning of life is the value of life itself [13]. The meaning of life does not lie in the final finding but in the search, itself. It does not represent a definitive point, but rather something that stands before a man as a goal requiring on-going new changes. It may be assumed that in the concept of quality of life, the self-evaluation of an individual in the light of already mentioned saturated
need of self-actualization and fulfilment of the chosen sense of life becomes increasingly important. Traditionally in the medicine, quality of life and health are one of the key themes of research. The most widespread definition of health is offered by WTO (1948) according to which the health is the state of complete physical, mental and social well-being and not only the state of being free from illness. Health is one of the basic components of human potential of society, as well as a component of the multilateral development of human personality and part of his self-realization. Thanks to good health care, the functional status in elderly and old people is improving. It is a significant assumption of their improving quality of life.

Aging population and life-prolonging treatment in patients with heart disease through new, contemporary therapeutic methods lead to increased prevalence of chronic heart failure on a worldwide scale [14]. In recent years, resynchronization therapy for the treatment of heart failure (cardiac resynchronization therapy - CRT) has gained a key position within nonpharmacological treatment methods. The principle of resynchronization is to achieve atrioventricular synchronization, synchronization of contractions of both ventricles and in particular, synchronization of individual areas of the left ventricle [15]. Cardiac resynchronization can be achieved by independent pacing of atriums and both ventricles. During resynchronization therapy, pacing of the epicardial surface through branching venous system of the heart is used predominantly. It is known, that prolonged QRS complex and left bundle branch block have negative influence on left ventricular dyssynchronization, associated with an increased incidence of sudden death and heart failure [16]. It turned out, that mortality of patients with QRS complex lasting for more than 200ms is approximately 5 times higher than in case of patients with physiological QRS duration. In developed countries, almost 2% of adult population suffers from heart failure.

5. Medical aspect

Cardiac resynchronization therapy (CRT) is a non-pharmacological treatment method for patients with chronic heart failure, in functional class NYHA II-IV, with widened QRS complex and substantial left ventricular systolic dysfunction. Ventricular dyssynchrony may aggravate ventricular pump performance. CRT involves treatment with simultaneous stimulation of both ventricles (biventricular pacing) or of one ventricular in patients with Bundle Branch Block to achieve the reduction of dyssynchrony [17]. The aim of our study from is, in addition to the theoretical summary of evidence-based medicine for CRT, to familiarize with patomechanisms of the left ventricular dyssynchrony, outline the possibilities of its documentation, and principles of CRT functioning as well as to evaluate the benefit of the treatment method in the mentioned geriatric patient group. We have proved similar efficacy and benefit of CRT in the elderly as well as in younger patients involved in clinical trials through prospective analysis of 136 patients over 65 years. From January 2011 to
December 2013 in department of arrhythmias SÚSCCh, the patients were primo-implanted with CRT- D (CRT in combination with a defibrillator) – 77 patients, respectively CRT- P (biventricular pacemaker) - 41 patients or underwent an upgrade procedure to CRT – D (5 patients), respectively to CRT- P (1 patient).

Chronic heart failure represents a growing health problem. Its annual incidence in developed countries is 5 to 10 per 1000 people [18]. The majority of these patients are over 70 years of age and a half of them suffer from left ventricular ejection fraction (LVEF) <50%. Approximately 1% of all emergency hospital admissions in adults is caused by heart failure. Not surprisingly, the prevalence and incidence of chronic heart failure is progressively increasing with age (0.7% of patients between 45 to 54 years of age compared to 8.4% older than 75 years of age) [19]. Euro Heart Failure survey showed that more than one third of patients with left ventricular systolic dysfunction with LVEF ≤35% had a wide QRS complex above 120ms and a majority of them had a left bundle branch block (LBBB) [20]. Based on current recommendations, only a small group of patients with heart failure is recommended for CRT (approximately 5-10%), however, in absolute numbers, it is still a large number of patients. In general, the prognosis of heart failure is poor. Patients admitted to hospitals with heart failure represent a one-year mortality rate of approximately 20% and in patients who are over 75; this rate exceeds 40% despite pharmacological treatment. The prognosis for patients with a wide QRS complex is worse [21]. A reduction in overall mortality in patients with chronic heart failure who received cardiac resynchronization therapy was demonstrated in several randomized trials.

Currently, resynchronization treatment is considered as standard and approved treatment for selected patients with heart failure. The origin and progression of heart failure is related to the process called left ventricular remodelling. This term refers to its deformation, dilation and worsening of systolic and diastolic function [22]. Several factors are known that lead to remodelling of the left ventricle, whereby the most common cause is myocardial infarction. However, the trigger factor may be also cardiomyopathy, arterial hypertension, valvular disease or heart muscle inflammation [23]. There is an increasing number of data referring to the Atrioventricular Conduction Disorders and subsequent dyssynchronization of contraction as possible causes of left ventricular remodelling [24].

Cardiac dyssynchronization refers to the time shift between atrial and ventricular contractions (atrioventricular), between left and right ventricular contractions (interventricular) and between contractions of various left ventricular segments (intraventricular). From a clinical point of view, intraventricular dyssynchronization, associated with higher mortality and the need for hospitalization for heart failure compared to other forms of dyssynchronization, has the greatest adverse consequences [25]. If cardiac dyssynchronization is manifested by electrocardiography, we are talking about electrical dyssynchronization. It is displayed by changes in the surface ECG which reflect disturbances of atrioventricular or intraventricular conductivity. It is manifested by prolongation of the PR interval or QRS complex. Electrical
dyssynchronization is considered to be the main cause of mechanical dyssynchronization in most patients [26]. Two big multicentric, randomized studies, LESSER-EARTH (Evaluation of Resynchronization Therapy for Heart Failure) trial [27] and EchoCRT (Echocardiography Guided Cardiac Resynchronization Therapy) [28] showed that CRT did not bring the mortality benefit in patients with chronic heart failure and narrow QRS complex ≤ 130ms.

The aim of current efforts in the treatment of chronic heart failure is not only to stop remodelling changes, but also to achieve so called reverse remodelling that represents a complex process involving reduction of size, adjustment of deformations and improvement of the left ventricular contractile function. Echocardiography shows reduced end-systolic and end-diastolic volume of the left ventricle, the wall thickness and the left ventricular mass is reducing, as well as the degree of mitral regurgitation. At the same time, there is a reduction in the sphericity index and increase in ejection fraction [29, 30].

These changes are associated with improved survival, increased exercise capacity as well as improved quality of life and prognosis of patients [31]. Responders, i.e. patients who respond to and benefit from CRT, are defined as patients, who show improvement in the functional group NYHA ≥ 1 degree and in the left ventricular ejection fraction by ≥5%. The so-called super-responders show improvement in the NYHA class to level I or II and in the left ventricular ejection by ≥20% or the final LVEF is ≥50% [32].

There is no evidence of benefit of CRT in patients with heart failure and a narrow QRS complex <120 ms. In the study RethinQ (REsynchronization TTherapy IN patients with heart failure and narrow QRS), therapy treatment through CRT did not bring any improvement in peak oxygen consumption (which was the primary goal) or quality of life in a subpopulation of patients with a narrow QRS (≤130 ms) and with evidence of dyssynchrony by echocardiography [33].

Quality of life is a subjective expression of the impact of the disease on physical, psychological, emotional and social functions of an individual. Quality of life represents a motivating force for patient to move forward and act, because patient’s judgement about his own health is of great predictive value for prognosis [34]. The above aspects (i.e. psychological, physical and social), also represented by abstract values such as satisfaction, happiness, morale, positive and negative influences (disease, its treatment, environment, family), have significant impact on overall condition of the patient, including the length of life.

CRT has the potential to improve the quality of life of patients with chronic heart failure, which is supported by several randomized clinical trials (MUSTIC-SR, PATH-CHF, MIRACLE, MIRACLE-ICD, CONTAK-CD, CARE-HF). The quality of life of a patient with CRT can be generally improved, even though he does not meet the objective responder parameters, e.g. increased left ventricular ejection fraction proven by echocardiography or reduction of the left ventricular end-systolic volume index (according to the recent clinical study from Poland, overall improvement in quality of life was reported by 45% of non-responders).
Improvement in the NYHA class has been accompanied by improved quality of life [35].

6. Patients and methods

136 monitored patients over 65 years of age were, during January 2011 to December 2013, primo-implanted with CRT-D (thus, the CRT in combination with a defibrillator), respectively CRT-P (resynchronized pacemaker) or an upgrade of the originally implanted system to CRT-D, respectively CRT-P, was carried out. During this period, a total number of 306 procedures associated with cardiac resynchronization therapy were performed, whereby 206 procedures covered primo CRT-D implantations, 52 CRT-P implantations, 36 elective CRT-D exchanges, 2 CRT-P exchanges and 2 patients underwent an up-grade to CRT-P and 2 to CRT-D (Figure 1).

Figure 1. Total number of procedures in relation to CRT patients in SÚSCCH a.s. BB during 01/2011–12/2013.

As for age composition in patients with CRT-D primo-implantations, respectively CRT-P, biventricular defibrillator was primo-implanted in 77 seniors. The majority of these patients were between 65-70 years of age (56% of this cohort, resp. 25% of the total number of patients). No patient over 80 years was implanted with a defibrillator in combination with CRT. 41 seniors (13% of the total number of procedures) were primo-implanted with a biventricular pacemaker. Representation of this procedure was approximately evenly distributed in every age group over 65 (from this group 24% of patients were 65-70 years old, 29% were 71-75, 20% were 76-80 and 27% with primo-implanted CRT-P over 80 years old).

In the remaining geriatric patients, we performed an exchange of the CRT or an extension of a simple pacing or defibrillating system to a resynchronization device (so-called up-grade).

In terms of the underlying disease leading to the chronic heart failure, the incidence of dilated cardiomyopathy and ischemic cardiomyopathy within the group was almost alike (68 vs 63 patients). In females, dilated cardiomyopathy
dominated (in 25 geriatric patients, thus 71% of monitored females), followed by ischemic cardiomyopathy (in 10 patients, thus 29%). In men, we observed opposite results, the relative presence of ischemic heart disease (in 53 patients, accounts for 52%) and dilated cardiomyopathy (in 43 patients, accounts for 43%). We also focused on the morphology of QRS complex prior to implantation of the biventricular device, while taking into account patients with biventricular stimulation during elective exchanges of CRT. The majority of patients showed a typical left branch bundle block, specifically 60 (i.e. 44% of patients), followed by atypical LBBB in 23 patients (17%), intraventricular conduction delay in 19 patients (i.e. 14%) and finally paced ventricular QRS in 8 (6%) and RBBB in 10 patients (7%). The most common basic rhythm before implantation of the resynchronization therapy was sinus rhythm (28 female patients, i.e. 80% of females and 56 geriatric male patients, i.e. 55% of monitored males), then atrial fibrillation (7, i.e. 20% of females and 40, i.e. 40% of males). Other rhythms (atrial tachycardia in 2 males and stimulated atrial rhythm in 3 males) were minimally represented.

Patients were ambulatory checked at regular intervals (the first follow-up was usually 2-3 months after primo-implantation, respectively system up-grade, in case of reimplantation, the interval was longer – on average 6 months and following follow-ups after 6-9 months for patients with uncomplicated progress).

Predominantly, we were interested in the quality of life of seniors with implanted CRT. We evaluated it using a questionnaire method. We chose the modified *Minnesota living with heart failure questionnaire* evaluating the degree of impact of heart failure on patient’s quality of life. It is a valid and reliable tool, which was created as a project at the University of Minnesota. The questionnaire is designed not only for clinical studies, but also for practical evaluation of the impact of heart failure on key aspects of quality of life. It consists of 21 items (mostly related to the symptoms of heart failure, sleep quality, exercise capacity, social contact with others, the possibility of participating in favorite activities, perception of the illness and its treatment, etc.), which resulted from an analysis of available tools and based on experts’ experiences and judgment.

7. Results

In the group of the patients monitored before the implantation of the CRT device, the value of the physical quality of life score was 3820, while after CRT device implantation this value dropped to 2510 in the same group of patients. Prior to CRT device implantation SD ± was 12.84 and after the CRT implantation, it was 11.74, which clearly demonstrates an improvement in quality of life. Expressed in percentage, the quality of life of patients improved in physical score by 34.29% (Figure 2).

When evaluating social score, we proceeded similarly as before (score of 2213 before vs. 1431 after CRT implantation, SD ±8.75 before vs. 7.55 after CRT implantation, thus percentage improvement of 35.33%) and for
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physical/emotional score (1670 vs. 1002, SD ±8.56 vs. 7.52 and percentage improvement of 40% after CRT implantation).

![Figure 2](image.jpg)

**Figure 2.** Improvement of quality of life after CRT implantation – summary.

In the same way, we also evaluated the overall quality of life score (8353 vs. 5463, SD ± 29.46 vs. 27.64 and percentage improvement of 34.6% after CRT implantation compared to the situation before CRT implantation).

Based on stated results, we can say that we were able to improve the overall quality of life, as well as its individual aspects of patients undergoing CRT implantation. Objectification of the given findings by means of echocardiogram findings (i.e. increase in left ventricular ejection fraction, regression of its end-diastolic diameter, respectively improvement of the degree of mitral regurgitation) were, however, present in about two thirds of patients. After a period of 6 months of monitoring, the patients who experienced an improvement in the functional NYHA class by more than one degree and improvement in the left ventricular ejection fraction by more than 5% were finally defined as responders.

Studies demonstrating the beneficial effect of CRT in patients with chronic heart failure with systolic dysfunction, include only a small percentage of geriatric patients (average age is usually under 65). A meta-analysis of several large studies points to the lack of survival benefit in elderly patients, whereby morbidity and mortality in connection with implantation of electro-impulse generators is even higher in patients older than 80 years [36].

While the role of the ICD is only to improve the survival of patients, CRT is able to improve their quality of life. Therefore, ICD implantation in elderly patients (mostly over 80 years of age) should be thoroughly considered in regards to life expectancy, presence of co-morbidities, as well as the risk of deterioration in quality of life because of inadequate shocks.

Available data are showing that CRT reduces total mortality by 22% and the number of hospitalisations by 37%, even in the elderly patients. Similar effectiveness has been proven in improvement of the left ventricular remodelling, functional capacity and the time of the first hospitalization of patients <70 years of age and in those >80 years of age. On the other hand, annual mortality in
patients over 80 years is higher [37]. Based on the above limitations, the results of this work cannot be generalized, however, they can help in decision-making process when considering the implantation of CRT in geriatric patients.

8. Conclusions

In general, the quality of life is perceived mostly subjectively and related to good feeling of well-being, satisfaction and comfort. It is obvious that the state of complete physical, mental and social well-being, as well as absence of the disease, is difficult for seniors to achieve. An important role in this process is being played by good friends around, a functional family, a sense of economic security but also health. In the complex of serious existential anxieties of seniors nowadays is the fear of their heart failure. Based on the presented findings about quality of life of seniors and reflecting longer-term investigation of geriatric patients, it can be summarized that seniors with chronic heart failure benefit from cardiac resynchronization therapy (naturally when meeting indication criteria), similarly as younger patients who were included in a number of clinical trials. Therefore, CRT should be definitely considered as a possible effective treatment strategy to improve the quality of life of elderly patients with chronic heart failure.

When deciding to add a defibrillator to CRT in the very elderly patients, a strictly individual approach must be applied taking into account a lower number of co-morbidities and a relatively good life expectancy of the patient. Advanced age should not be a contraindication for implantation of CRT, but in geriatric populations, this treatment should be strictly individualised with respect to the co-morbidity and fragility. Only when these aspects are considered, we can improve the quality of life of the vast majority of elderly patients with an implanted CRT device, and in some patients, even with the objective evidence of improvement in echocardiography parameters and in the hands of an experienced operator with a similar incidence of peri- and post-implantation complications. This finding is a challenge not only for current health legislation processes, but also for pastoral and non-profit church facilities for seniors, if the dignity of man according to God’s design is to be in the epicentre of serious human care under the imperative of love.

References

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