PATIENTS' PERCEPTIONS ABOUT LIVING WITH PERMANENT CARDIAC PACEMAKERS

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Abstract

Nurses play an increasingly prominent role in cardiac pacing during both the inpatient and the outpatient phases of care and they may foster positive attitude to this implanted device. **Aim:** of this research was to explore perceptions of patients living with a permanent cardiac pacemaker dual-chamber (PMs-DDD) aged over 60 years. **Material and Methods:** The sample of the study consisted of 50 patients with permanent cardiac pacemaker dual-chamber (PMs-DDD) with age ≥ 60 years old. Data was collected by the method of interview using a questionnaire created by researchers to explore patients' perceptions after PMs-DDD implantation. **Results:** Of the 50 pacemakers recipients enrolled in the study, 35 were men. In terms of demographic characteristics, 33(66.0%) of participants was 60-70 years old, 35(70.0%) had primary education and 26(52.0%) was married. In terms of clinical characteristics in 31(64.6%) co-existed other disease. With respect to patients' perceptions post implantation, it was showed that 31(62.0%) was "enough" informed about the state of their health, 40(80.0%) checked periodically the pacemaker, 29(58.0%) declared that quality of life had improved, 21(42.0%) experienced anxiety about possible malfunction of the device, and 39(78.0%) carried the pacemaker ID card. Finally, 41(82.0%) believed to depend on the device, and 31(62.0%) reported that family supported them to adjust living with permanent pacemaker. **Conclusion:** The present findings provide insight into patients' perceptions post implantation and may be fundamental when developing interventions that address the needs of people living with permanent cardiac pacemaker.

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Introduction

Cardiovascular diseases are the leading cause of mortality and morbidity globally, in most developed and many of the developing countries. Nearly two-thirds of all deaths in women and men aged ≥ 65 years, are associated to cardiovascular diseases.[1] Cardiac pacemaker is a device implanted for treatment of life threatening arrhythmia. According to estimates, approximately, 3 million people are having a pacemaker, globally. [2,3] This number is expected to be increased due to ageing of population and prolonged survival of coronary disease.[1,2]

Permanent cardiac pacemaker implantation implies several restrictions in patients' life including modification of prior activities, regular follow-up appointments with cardiac physiologists, precautionary measures that prevent possible adverse effects of dental or medical procedures and other safety guidelines for exercise an travel.[12,3,]

Assessing needs, beliefs and perceptions of cardiac patients has beneficial effect on disease management.[4]

The **aim** of the present research was to explore perceptions of patients with permanent cardiac pacemaker dual-chamber (PMs-DDD) with age ≥ 60 years old.

Material-Methods

Study-population

The sample of the study consisted of 50 individuals who had undergone permanent cardiac implantation (PMs-DDD). More in detail, the research was conducted in a public hospital in Attica from February 2018 to June 2018. This sample was a convenience sample.

Criteria for inclusion in the study were: a) patients to have undergone implantation of a permanent cardiac pacemaker b) patients to have the ability to write and read the Greek language fluently c) patients to have dual chamber pacing system, DDD (two leads are implanted, one in the right ventricle and one in the right atrium) and d) patients with age ≥ 60 years old.

The exclusion criteria were: a) patients with a history of mental illness b) patients with other type of permanent cardiac pacemaker, i.e single chamber system (VVI) and c) patients younger than 60 years old.

Data variables

Data collection was performed via an interview using a questionnaire developed by the researchers. Data collection lasted approximately 15 minutes and took place when patients were waiting for their follow-up visit in the outpatient department of a public hospital in Attica.

The data collected for each patient included demographic characteristics (age, education level, marital status), clinical characteristics (other disease) and their perceptions (information about the health state, periodical monitoring of the device, improvement in quality of life, anxiety about possible malfunction of the device, carry the ID card, dependency on the device, and family support).

Ethical considerations : The study was approved by the Medical Research Ethics Committee of the

hospital that was carried out and it was conducted in accordance with the Declaration of Helsinki (1989) of the World Medical Association.

All patients participated in the study anonymous and voluntary and after they had given their written consent.

Statistical Analysis

Nominal data are presented in absolute and relative (%) frequencies. All statistical analyzes were performed with SPSS version 20 (SPSS Inc., Chicago, IL, USA).

Results

Sample description

Table 1 presents the patients' demographic characteristics. In particular, of the 50 participants, 70% was men, 66% was 60-70 years old, 70% had primary education and 52% was married.

Table 1: Patients' demographic characteristics (N=50)	
	N (%)
Gender	
Male	35(70.0%)
Female	15(30.0%)
Age	
60-70	33(66.0%)
>70	17(34.0%)
Education	
High school	15(30.0%)
Primary	35(70.0%)
Status	
Married	26(52.0%)
Widowed	14(28.0%)
Divorced	10(20.0%)

Table 2 presents the clinical characteristics of patients. In particular, 64% of the sample had other disease.

Table 2: Patients' clinical characteristics (N=50)	
Other disease	
Yes	31(64.6%)
No	17(35.4%)

Table 3, presents patients' perceptions. More specifically, 82% was informed about the state of their health (very and enough), 80% checked periodically the pacemaker, 58% reported that their quality of life was "very" improved after implantation, 42% felt "sometimes" anxious about possible malfunction of the device, 82% considered their life depended on pacemaker, 78% carried their ID pacemaker card and finally 62% believed that family supported them to adjust living with pacemaker.

Table 3: Patients' perceptions after permanent cardiac implantation (N=50)	
	N (%)
Do you feel informed about the state of your health ?	
Very	10(20.0%)
Enough	31(62.0%)
Little	9(18.0%)
Do you check periodically your pacemaker ?	
Yes	40(80.0%)
No	10(20.0%)
Do you believe your quality of life has improved after implantation?	
Very	29(58.0%)
Enough	18(36.0%)
Little	2(4.0%)
Not at all	1(2.0%)
Do you feel anxiety about possible malfunction of the pacemaker?	
Always	8(16.0%)
Often	12(24.0%)
Sometimes	21(42.0%)
Never	9(18.0%)
Do you believe that you depend on the pacemaker?	
Yes	41(82.0%)
No	9(18.0%)
Do you carry your pacemaker ID card?	
Yes	39(78.0%)
No	11(22.0%)
Do you believe that your family supports you to adjust living with pacemaker?	
Yes	31(62.0%)
No	19(38.0%)

Discussion

The results of the present study showed that 82% of participants reported to be "very" and "enough" informed about their state of health. Information plays a vital role in cardiac patients and it is held out to be a crucial factor in disease treatment including adherence to therapeutic recommendations.[5] Information reflects "what" the patient wants to know by health professionals so as to cope effectively with the disease.[6,7]

A patient-centered information model which evaluates patients' characteristics that influence the need of information (i.e gender, age, severity and type of cardiac event) promotes active participatory decision making in therapy.[5] Discharge planning involving provision of elaborate information significantly helps smooth transition to home whereas short hospital stay eliminates the opportunities for nurses to provide pre discharge information. In this line of though, it is essential to create an environment of safety where nurses encourage patients to ask questions and have available time to clear all misunderstandings. Additionally, when providing information is essential to assess the emotional state of patients as well as the way they perceive the disease.[5]

On the other end of spectrum, lack of awareness about the disease among cardiac patients is not a rare issue since clinicians often pay more attention on therapy, have diminished available time for conversations or experience uncertainty whether patients wish to obtain an in-depth knowledge of the disease.[8]

In terms of the implanted device, 80% of participants checked periodically the pacemaker as consulted by health professionals, 78% carried their ID pacemaker card. Interestingly, implantation brings about significant changes in the personal, family, and social life of patients but the most crucial point for them is to handle the pacemaker's requirements in everyday life. Significantly more, individuals should understand the need for regular monitoring including assessment of battery's strength as well as all the restrictions and precautions which ensure a long life with pacemaker.[2] Other necessary areas in the field of treatment is anti-arrhythmic medication, detection of heart rhythm disorders, and identification of sources of electromagnetic interference.

Results also revealed that 42% of participants felt "sometimes" anxious about malfunction of the implanted device. Interestingly, these device systems need to have long-term durability. According to Bennett et al.,[9] device adverse events may be early, or following implantation (perforation, lead dislodgement, infection), or late (lead fraction, insulation failure or device system infection). A relevant study in Greek population showed high levels of anxiety in 27.2% patients with permanent cardiac pacemaker. Also, the same researchers showed that 8.9% had an infection over the pacemaker site. [2] Malm et al.,[10] stated that a self-care program based on the nurse's assessment of the patient's needs will enable them to manage life situations, thus reducing anxiety. The researchers claimed that self-efficacy plays an important role in the likelihood of adopting

health behaviour changes and is associated with improved clinical and social outcomes.

Moreover, 58% of participants reported that their quality of life (QoL) was improved after implantation. A possible explanation is that after implantation, the symptoms withdraw. According to the World Health Organization QoL is defined as "individuals' perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, standards and concerns". However, the question is whether is better to add life to the years or to prolong an unsolvable medical condition.[11] In the past, there was noticed an excessive focus on extending the length rather than the quality of the cardiac patient's life. [12]

Barros et al.,[13] explored the QoL after pacemaker implantation in 107 clinically stable patients, of whom 49.5% was women and 50.5% men (average 69.3±12.6 years) and had an implantation time span of three to 12 months. The results showed lower QoL in physical aspects and dyspnea and higher QoL in social aspects and discomfort. Similarly, Oliveira et al.,[14] who explored 139 clinically stable patients (60.4% female) during their post implantation follow-up visit illustrated that female patients and those without a partner experienced low QoL.

What is more intriguing is that data highlighted dependency on pacemaker in percentage 82%. This is an issue that merits further research. Patients perceive that prolongation of life is only achieved by artificial means and life is more limited if it is depended on an implanted device.[2,15] Similarly, 63.6% of Greek patients with permanent cardiac pacemaker declared dependency on health professionals but not

on the device.[2] Attitude towards technology dependency may explain the psychological distress in device recipients. Ghojazadeh et al.,[3] who explored the experiences of 27 recipients demonstrated different feelings about living with pacemaker ranging from fear and shock to spontaneous or compulsive adaptation to the implanted device. Moreover, recipients encounter with personal, financial, physical and social issues. At their effort to eliminate these difficulties, they frequently rely on care provided by family or relatives, on appropriate medical care and on religious beliefs. [16]

Finally, 62.0% of participants declared that family supported them to adjust living with pacemaker. As support is defined the 'offer and receive of aid' by a network (family, friends or significant others) when a crisis appears. Support is linked to improved clinical outcomes in chronic illnesses through various mechanisms such as decreased levels of depression, and anxiety, improvement of patients' QoL, assistance to access health care services, and better compliance to the therapeutic regimen.[16] Roberts [17] illustrated the family support as one of the fundamental principles of pacemaker follow up which is beneficial on patients' illness management.

In contemporary modern times, where nursing care is moved from paternalistic model to the wide recognition of patients' rights including their actively participation in decision-making, it is easily understandable why patients' needs, beliefs and perceptions have come to the forefront of clinical practice.

Limitations of the study

This study has some limitations. Convenience sampling is one of the principal limitations of this

study. This method is not representative of all population with pacemaker living in Greece, thus limiting the generalizability of results. Other limitations is the sample size which is relatively small, although it is not easy to enroll patients with age ≥ 60 years old who have dual chamber pacing system, DDD. Finally, there was no other evaluation that would show possible changes in patients' perceptions through time.

Conclusions

Though considerable progress has been made in the field of permanent cardiac pacing however a better understanding of patients' perceptions may help in the planning of rational and cost-effective interventions and assist individuals to adopt positive attitude to the implanted device.

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