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Research paper

Social support to elderly pacemaker patients improves device acceptance and quality of life

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ABSTRACT

Introduction: Patient acceptance of cardiac device has been shown to limit their quality of life. Little is known about the impact of social support (SS) on pacemaker (PM) acceptance. The aim of the study is to investigate the level of device acceptance in patients with pacemaker (PM) in the short time and the role of SS related to patients' PM acceptance.
Materials and methods: A total of 62 patients (median age: 76.50 years) seen in two cardiology clinic between June and November 2013 complete the Florida patient acceptance survey (FPAS), the Assessment of quality of life and related events (Aquarel Questionnaire), the Euro quality of life 5 dimension 3 level (EQ-5D-3L) and the Multidimensional scale of perceived social support (MSPSS) before PM implantation, after 7 days and after 30 days from PM implantation.
Results: In 30 days, the levels of SS and of acceptance of cardiac device and of HRQoL increase. At 7 days, 16 patients have low level of acceptance of cardiac device, decreasing to 3 at 30 days. In particular, in short time patients with low level of FPAS have lower level of SS than patients with high level of acceptance of cardiac device (median of MSPSS total score: 4.75 vs. 5.58; *P*-value: 0.02). At multivariable analysis, social support is confirmed to influence device acceptance.
Conclusions: The observed significant relationship between SS and patients' acceptance of PM suggests that SS is an important factor in promoting acceptance of cardiac device in patients with PM.

1. Introduction

Being implanted with a pacemaker (PM) can greatly improve health-related quality of life (HRQoL) and for some people, it can be lifesaving, especially in third degree atriaventricular block condition, because patients suffering from this type of disorder could require continuous pacing because there is no conduction between the atriaventricular nodes. The importance of HRQoL as an outcome in clinical management and in research trials has been increasingly recognized in the field of cardiology including patients before and after PM implantation [1–6].

HRQoL is influenced by physical wellbeing but also by mental state, social and emotional functioning, culturally determined values, social support (SS) and effects or complications of disease or its treatment. Therefore, HRQoL can be seen as a multidimensional concept that includes three broad domains of functioning: physical, psychological (cognitive and emotional) and social [7]. Moreover, patient acceptance of cardiac device is theorized as a disease-specific component of the construct of HRQoL in patients with cardiac device [8].

SS has been recognized as a component of HRQoL and its contribution has been conceptualized in many ways. Highlighted features are the structural aspects of social networks (e.g., the size of a person's social circle or the number of resources provided), functional aspects of SS (e.g., emotional support or sense of acceptance), and received support (e.g., provision of a specific supportive behaviour, such as reassurance or advice, in time of distress), as well as the subjective perception of support by the recipients [9–12]. Generally, SS has been defined as an exchange between providers and recipients. Although many different definitions of SS can be found in literature, all of them share common characteristics. In fact, all definitions imply some type of positive interaction or helpful behaviour provided to a person in need of support [11]. Four main types of supportive social interactions have been described: emotional (e.g., provision of

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caring or physical affection), informational (e.g., provision of information and advice during a time of stress), instrumental (e.g., tangible assistance, services or material goods) and appraisal (e.g., communication or information that are relevant for self-evaluation) [9–12].

Understanding the impact of HRQoL and SS on device acceptance (defined as "the psychological accommodation and understanding of the advantages and disadvantages of the device, the recommendation of the device to others, and the derivation of benefit in terms of biomedical, psychological and social functioning" [8,13]) is essential in order to develop health care interventions in managing patients implanted with PM, this is because a poor device acceptance may affect health outcomes. Particularly, nurses could play a key role in developing and providing these interventions, given their close interaction with patients. Since there were no found studies that examined specifically the role of SS on PM patient acceptance, aims of this research are:

- to describe the levels of HRQoL-patients' acceptance of PM in the short time post-implantation;
- to examine the relation between SS and HRQoL-patients' acceptance of PM;
- to determine the predictors of patient acceptance of PM;
- to understand if the assessment of acceptance of PM could be a valid element of disease-specific HRQoL in PM patient as noted in implantable cardiac device (ICD) population.

2. Materials and methods

The study has been designed as an open in-patients cohort.

2.1. Subjects enrolled

A cohort of 62 consecutive patients (33 males and 29 female) aged 65 or older was recruited from two cardiology units of two hospitals of North-East of Italy (Azienda U.L.S.S.15 Alta Padovana, hospital of Camposampiero and Azienda Ospedaliera-Universitaria of Padova). The enrolled population was asked to complete a set of questionnaires; they were volunteers and received no monetary compensation. Patients were recruited if they were implanted with PM for the first time. Exclusion criteria were: less than 65 years of age, inability to write and read Italian language, cognitive impairment.

2.2. Data collection

The study was carried out between June 2013 and November 2013. Demographic characteristics investigated were: gender, age at time of PM implantation, marital status, educational level, work status, nationality, house sharing and living area. Clinical information regarded: indication for PM implantation, type of PM implanted, device manufacturers, device-related complications, type of admissions to hospital, period of hospitalization, number of drugs and comorbidities (assessed from medical records). The European pacemaker patient identification card code for symptoms was utilized to determine pacing mode. Information about physical activity (if the patient did physical activity before hospitalization and, if the subject did not do any kind of sport, it was requested to specify the reason why) and leisure activity were obtained by means of purpose-design questions.

2.3. Florida patient acceptance survey (FPAS)

The FPAS is an 18-item questionnaire used to assess patient's acceptance of cardiac implantable device [8]. Items are rated on a 5-point Likert scale from 0 (strongly disagree) to 5 (strongly agree), with a high score indicating high acceptance of the cardiac device (the scoring ranges from 0 to 100). Fifteen items contribute to four subscales:

- Return to function (RTF), 4 items;
- Device-related distress (DRD), 5 items;
- Positive appraisal (PA), 4 items;
- Body image concerns (BIC), 2 items.

The remaining three items are independent from the subscales and total scores and do not reflect device acceptance. The return to function domain measures the level to which device implanted patients returned to work, social and physical activities they were engaged prior to device implantation. The device-related distress domain assesses the psychological distress and avoidance behaviours associated with device implantation. The positive appraisal domain measures the perceived benefits of the device and finally, the body image concern domain regards concerning about changes in attractiveness and perception of body disfigurement related to the device [13]. In the 4 subscales of the instrument, a high score on RTF and PA means higher acceptance, whereas a high score on DRD and BIC represents less acceptance [8]. Each scale's scoring range from 0 to 100. The psychometric properties of the FPAS have previously been investigated in North American, Danish and Dutch patient samples. Results showed that the FPAS has good validity and internal consistency [8,14,15]. Moreover, our study demonstrated that it is feasible also for PM patient and not only for ICD implanted patients (the purpose for which the questionnaire was initially developed).

2.4. Health-related quality of life

We assess HRQoL using both a disease-specific and a non-disease specific instrument: the Aquarel questionnaire and the EQ-5D, respectively.

2.5. Assessment of quality of life and related events (Aquarel questionnaire)

The Aquarel questionnaire is a disease-specific quality of life questionnaire for patients suffering from rhythm disorders requiring chronic pacing and it was designed as a pacemaker-specific extension of the short-form (SF-36) health survey [4,16,17]. This questionnaire has been validated and tested for reliability [17].

It consists of 24 short and clear items, and it takes about 10 minutes for filling. Aquarel questionnaire consists of 4 scales:

- cognition (4 items);
- arrhythmia (5 items);
- dyspnea and exertion (7 items);
- chest discomfort (8 items).

Each scale's scoring ranges from 0 to 100 and lower scores represents a lower HRQoL [4,16,17].

2.6. Euro quality of life 5 dimension 3 level (EQ-5D-3L)

EuroQol-5D is a self-administered instrument designed to assess five dimensions of health status: mobility, self-care, daily activities, pain-discomfort, anxiety and depression. Each question has three levels of response (no limitation, some limitation, severe or complete limitation). EQ-5D includes also a visual analogue scale (VAS) to measure perceived health status. Respondents