

## Effect of a Care Plan on the Quality of Life of the Patients with Atrial Fibrillation

### Abstract

**Background:** Atrial fibrillation is one of the most common cardiac arrhythmia affecting patients “quality of life (QoL).” With regard to limited number of interventional studies on such patients’ QoL, the present study aimed to define the effect of a care plan on the QoL of the patients, hospitalized in coronary care unit (CCU), with atrial fibrillation. **Materials and Methods:** This is a randomized two-group clinical trial that was conducted on 50 patients, diagnosed with atrial fibrillation and hospitalized in CCU. Fifty patients were selected through convenient sampling and were randomly assigned to study ( $n = 25$ ) and control ( $n = 25$ ) groups. Study group underwent an already designed care plan, while the control group received just routine care. QoL was measured by Short Form (SF-36) QoL questionnaire before and one month after intervention. Data were analyzed by *t*-test through Statistical Package for the Social Sciences. **Results:** Independent *t*-test showed a significant difference in mean scores of overall QoL and all of its domains ( $p < 0.05$ ), except for general health ( $t = 1.23$ ,  $p = 0.22$ ) and social function ( $t = 1.70$ ,  $p = 0.09$ ). The *t*-test showed a significant difference in mean (SD) scores of overall QoL in study [51.57 (14.57)] and control [41.80 (18.51)] groups after intervention ( $t = 2.07$ ,  $p = 0.04$ ). **Conclusions:** The results showed that an already designed care plan can result in improvement of QoL in patients with atrial fibrillation. In the present study, a standard care plan was administrated for the patients with atrial fibrillation. Through administration of care plans in clinical settings, nurses’ clinical and effective role can be improved.

**Keywords:** Atrial fibrillation, care plan, Iran, quality of life

### Introduction

Atrial fibrillation is the most common abnormal cardiac rhythm all over the world. It is estimated that 9 million people are involved in such a problem with an increasing trend in the US and Europe. Atrial fibrillation is the most persistent prevailing arrhythmia that shows a growing rate.<sup>[1]</sup> This is also the most prevalent cardiac rhythm disorder whose prevalence, at least in next 50 years, is going to be doubled due to higher age of the aging population.<sup>[2]</sup> It is predicted that prevalence of atrial fibrillation will increase from 5.2 million in 2010 to 12.1 million in 2030 mostly due to aging population.<sup>[3]</sup>

Treatment goals of atrial fibrillation include controlling cardiac rate and rhythm and prevention of treatment-related complications, and ultimately, promotion of the quality of life (QoL).<sup>[4]</sup> In a research in Toronto, Canada, QoL of the patients with atrial fibrillation was compared with that in general population for acute coronary

syndrome through Short Form-36 (SF-36). It showed that atrial fibrillation patients’ QoL significantly decreased.<sup>[5]</sup> QoL is associated with factors such as socioeconomic status, education level, number of children, and some other elements. Despite poor prognosis, cardiac diseases impose their negative effect on QoL through limitation of physical activities, decreased social interactions and emotions, reduction of happiness, increased dependency, and early retirement. Lack of a quality life due to aforementioned limitations, atrial fibrillation patients reveal the need for modifying the care models, along with standard treatments, to improve their QoL.<sup>[6]</sup> Medication is the current approach toward proximal atrial fibrillation and rapid ventricular response. For the patients who are at risk of thromboembolism, long-term anticoagulant therapy (more than 3 months) such as warfarin is suggested with close care to treatment complications. Totally, promotion of QoL is the main component of socioeconomic development,<sup>[7]</sup> and

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appropriate interventional programs should be designed to promote individuals' QoL in the society.<sup>[8]</sup>

The new approach in atrial fibrillation patients' QoL is to focus on new treatments instead of routine ones.<sup>[5]</sup> It should be considered that the disadvantages of medical treatments of atrial fibrillation are in conflict with their advantages.<sup>[9]</sup> Therefore, nonmedicational treatments should be designed and evaluated based on patients' needs. With regard to the need for caring models to promote atrial fibrillation patients' QoL, and as there are controversial results in this regard in various studies,<sup>[6,10,11]</sup> and finally, with respect to the importance of such patients' QoL, the present study aimed to define the effect of nursing care according to a care plan on the QoL of the patients with atrial fibrillation in coronary care unit (CCU).

## Materials and Methods

This is a randomized two-group two-step clinical trial (IRCT20160316027073N3) conducted on 50 patients with atrial fibrillation hospitalized in CCU of Nour Hospital, affiliated to Isfahan University of Medical Sciences, Iran in 2015. Sample size was calculated (based on sample size calculation formula) with confidence interval of 95% and test power of 0.84.

Qualified subjects were selected through convenient sampling and were assigned to study and control groups based on random numbers table. Inclusion criteria were complete consciousness of the subjects, no life-threatening physical condition, acute psychotic disorders, residing in Isfahan, and having no pacemaker and implantable cardioverter defibrillator (ICD). Exclusion criteria were any changes in patients' hemodynamic status, placing a new pacemaker or ICD for the patient, re-hospitalization within one month of the study, patient's losing interest to remain in the study, and re-hospitalization due to any reasons during the study.

Data collection tools were patients' medical files, demographic characteristics questionnaire, and SF-36 QoL questionnaire. SF-36 measures subjects' QoL in eight domains: physical function, physical role, emotional role, happiness, mental health, social function, pain, and general health.<sup>[12]</sup> This questionnaire includes 11 sections. Sections 1 and 2 are associated to individuals' general health, section 3 to physical function (including 10 questions), section 4 to physical dimension, section 5 to subjects' mental and psychological, section 6 is associated to social domain, sections 7 and 8 to physical pain, sections 9 and 10 to emotions, and section 11 is associated to subjects' general health. Items are scored in (3–5 points) Likert's scale with maximum score of 100. Asghari Moghadam and Faghihi confirmed validity and reliability of SF-36 through appropriate internal consistency of all subscales (test–re-test and Cronbach alpha values were 0.43–0.79 and 0.70–0.85, respectively, in their study).<sup>[12]</sup> In a study of Montazeri *et al.*,<sup>[13]</sup> reliability was reported between 0.77 and 0.9.

To conduct the study, firstly, demographic characteristics and QoL questionnaires were completed by the researcher for all the subjects in both groups. Control group underwent routine care including routine control of cardiac rate and rhythm, and prevention of thromboembolism, mostly administrated through oral and nonidentical instructions, and often, with educational pamphlets by the nurses in the ward. In study group, a care plan was designed based on previous studies, forcing the nurses to administrate care according to a checklist including control of cardiac rhythm and rate, prevention of thromboembolism and atrial fibrillation and their treatment strategies, complications, and educational program. Care plan also contained medical cardioversion checklist and heparin and warfarin thromboembolism prevention checklist that had been prepared based on relevant scientific texts<sup>[8]</sup> with experienced CCU nursing and midwifery academic members' indications. Medical cardioversion checklist was designed in the form of a package of items with nursing care in antiarrhythmia medications. Items included the points that nurses had to follow during preparation, administration, control, and stopping medication. Other items were on paying attention to patients' identity, preparation of correct dosage and medication upmost effect mechanism, and nursing care during preparation of these dosages. Heparin and warfarin thromboembolism prevention checklist (in the form of a package) asked nurses to follow the checklist containing some items on nursing care, evaluation of the side-effects and noticing systemic embolism and bleeding, patient education preparation based on standard scientific care plan, including patient education, drug name, prescribed dosage, side-effects prevention criteria, warning signs due to problems, the need for periodic evaluation, and evaluation of the side-effects in study group. Researcher precisely checked administration of the checklist by nurses. After patients' discharge, their QoL was followed after intervention through researcher's referring to subjects' houses and completing the QoL questionnaires again. This questionnaire was also completed in control group after one month. Data were analyzed by independent and paired *t*-tests through Statistical Package for the Social Sciences (SPSS Inc., Chicago, IL, USA, version 18).

## Ethical considerations

This study was approved by Ethics Committee of Isfahan University of Medical Sciences (Code no. IR.Mui.Rec. 1394.3.270, 2015). All subjects signed a written consent form and attended the study voluntarily. They were free to leave the study whenever they liked.

## Results

Results showed that subjects' age were in the range 30–75 years, 37 were males and 13 females, and 49 were married and 1 was single. Statistical tests showed no significant difference in age, sex, marital status, occupation, and education level ( $p > 0.05$ ). There was no significant

difference in weight, body mass index (BMI), abdominal circumference, hyperlipidemia, hypertension, cardiac diseases history, CCU hospitalization history, and history of cardiac medication and cardiac diseases in patients' family ( $p > 0.05$ ) [Table 1]. Independent  $t$ -test showed no significant difference in mean scores of QoL in any of the domains before intervention between the groups ( $p > 0.05$ ). Paired  $t$ -test showed a significant difference in mean scores of all QoL domains after intervention, compared to before, in study group ( $p < 0.05$ ). Paired  $t$ -test showed no significant difference in mean scores of overall QoL and its domains before and after study in control group ( $p > 0.05$ ). Comparison of the QoL mean scores in two groups one month after intervention showed that QoL mean score was significantly more in study group ( $p < 0.05$ ), compared to control, except for general health ( $p = 0.22$ ) and social function ( $p = 0.09$ ) [Table 2]. Comparison of QoL mean score changes in two groups one month after intervention in all domains showed a significant difference ( $p < 0.05$ ) except for general health ( $p = 0.09$ ), physical role ( $p = 0.14$ ), and happiness and joyfulness ( $p = 0.14$ ).

**Table 1: Comparison of mean age, weight, height, BMI, and abdominal circumference in study and control groups**

Group variable	Study	Control	Independent $t$ -test	
			$t$	$p$
	Mean (SD)	Mean (SD)		
Age (years)	65.70 (11.30)	66.40 (16.70)	0.19	0.85
(kg) Weight	74.80 (11.90)	77.60 (14.60)	1.55	0.13
(cm) Height	168.80 (9.40)	172.40 (6.30)	1.61	0.12
BMI	26.70 (3.93)	27.48 (3.59)	0.88	0.38
Abdominal circumference (cm)	88.10 (11.40)	94.80 (14.20)	1.65	0.11

## Discussion

Results showed that administration of a designed care plan for one month improved QoL in atrial fibrillation patients in study group, while there was no difference in control group. In studies of Betin Cort *et al.* (2005), Atabashi *et al.* (2014), and Montazeri *et al.* (2005), regardless of sample size and inclusion criteria, length of follow-up, length of study, adopted questionnaire, and location, receiving cardiac care led to a significant improvement of QoL in study group, which is in line with the present study.<sup>[14-16]</sup> Dugmore *et al.* reported some controversial results. They reported a significant increase in QoL score in control group within 12 months of follow-up ( $p < 0.001$ ), possibly due to the difference in study populations in two studies. They showed no significant difference between study and control groups before intervention ( $p = 2.8$ ). They showed that care activities can have negative significant effects on QoL ( $p < 0.001$ ), health ( $p < 0.01$ ), and mental and psychological factors ( $p < 0.05$ ). Meanwhile, control group also showed an improvement in QoL in control group, possibly due to different study population. Dugmor studied 122 male and 2 female subjects (mostly males with a significant difference in sex). Due to different follow-up length, possibly within 12 months, more adaptation occurred in control group resulting in promotion of QoL in both study and control groups after intervention. They reported a significant difference just in physical function, which is consistent with the present study. The present study showed a notable insignificant reduction in mean scores of physical function, social function, happiness and fruitfulness, emotional role, and mental and psychological health in control group before and after intervention, possibly due to not administrating the plans and standard care systematically and in a synergetic manner.<sup>[8]</sup>

**Table 2: Comparison of mean scores in domains of QoL before and after intervention in study and control groups**

QoL domain	Time	Study Mean (SD)	Control Mean (SD)	Independent $t$ -test and $p$
Overall QoL	Before	42.50 (15.80)	42.40 (17.40)	0.025 (0.98)
	After	51.57 (14.57)	41.80 (18.51)	2.07 (0.04)
Physical role	Before	39.20 (16.20)	32.70 (19.80)	1.26 (0.21)
	After	48.50 (17.39)	36.75 (23.12)	2.03 (0.03)
Physical pain	Before	47.00 (19.10)	49.50 (22.96)	0.41 (0.67)
	After	56.50 (18.08)	51.00 (23.36)	0.93 (0.05)
General health	Before	32.00 (15.70)	33.50 (11.20)	0.38 (0.70)
	After	40.72 (18.05)	34.50 (17.41)	1.23 (0.22)
Happiness and fruitfulness	Before	34.50 (22.80)	29.70 (19.86)	0.78 (0.43)
	After	42.75 (19.29)	29.41 (20.76)	2.35 (0.02)
Social function	Before	47.50 (18.07)	49.50 (18.90)	0.38 (0.70)
	After	55.50 (16.58)	46.50 (20.57)	1.70 (0.09)
Emotional role	Before	45.70 (14.50)	49.00 (15.46)	0.74 (0.45)
	After	57.00 (13.25)	47.51 (16.41)	2.24 (0.02)
Mental and psychological health	Before	38.00 (21.40)	35.30 (18.80)	0.46 (0.64)
	After	46.66 (18.94)	34.33 (21.82)	2.13 (0.03)
Physical function	Before	46.80 (23.26)	47.20 (24.30)	0.66 (0.95)
	After	53.06 (20.68)	44.60 (22.26)	1.39 (0.04)

Samartzis *et al.* (2013) in a meta-analysis on 1074 patients in study and 1106 patients in control groups reported that care in mental and psychological domain led to a significant increase in QoL after intervention ( $p < 0.001$ ), which is in line with the present study.<sup>[10]</sup> It seems that administration of cardiac care can result in promotion of QoL in atrial fibrillation patients. Though, on the one hand, learning cardiac rehabilitation is easy for the nurses who undergo academic education in universities, on the other hand, it is cost-effective, and educating nurses working in CCUs can improve patients' QoL and their physical, mental, and psychological health indexes. Through patient education on principles of rehabilitation and gradual trend of resuming activities, patients' QoL can be improved. Patients' complications due to their shortage of knowledge after discharge and not following physical activities, tailored to recovery, can be reduced, and their frequent hospitalizations and their relevant costs can be prevented. Our research was on a cardiac care plan that resulted in improvement of QoL in atrial fibrillation patients. Administration of such a care plan needs patients' education and a precise supervision. It seems that more precise and deeper studies, relevant to atrial fibrillation patients' QoL, are needed to improve their QoL. One of our limitations was personal differences that might have affected individuals' QoL evaluation but were out of researcher's control. Researchers suggest that similar studies with higher sample size and length be conducted. Another limitation may be possibility of receiving education and care from other sources during hospitalization and one month after discharge.

## Conclusion

Results showed that a care plan containing standard care can lead to improvement of QoL in atrial fibrillation patients. Cardiac care can be adopted to improve atrial fibrillation patients' QoL although they need patient education and precise supervision. They can also lower the costs, related to patients' hospitalization, and the re-hospitalization, imposed to the patients and the organizations.

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## Conflicts of interest

Nothing to declare.

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