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Long-term benefits of education by emergency care nurses at discharge of patients with atrial fibrillation

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ABSTRACT

Introduction and objective: Health education improves the prognosis of many diseases. A previous study in patients with atrial fibrillation (AF) showed that an educational intervention by nurses at discharge from the emergency room (ER) decreased AF-related complications at 3-month follow-up. Our objective was to determine whether this intervention had a long-term effect.

Patients and methods: A prospective study assessed the outcomes of an intervention carried out upon discharge from the ER. Patients with a diagnosis of AF were randomized into two groups: the intervention group and the control group. The intervention consisted of a basic explanation about the arrhythmia and its treatment, precautions and warning signs, a training to take their pulse, and an individualized informational leaflet. At one year of follow-up, the clinical records for all participants were reviewed. The primary variable was the combined endpoint of AF-related or treatment-related complications and death.

Results: The study included 240 patients (116 intervention and 124 control), mean age 76.1 ± 10.9 years. The primary variable was significantly lower in the intervention group (31.9% vs 48.4%; p = 0.005).

Conclusion: Education by ER nurses at patient discharge helped to decrease AF-related complications at one year of follow-up.

1. Introduction

Atrial fibrillation (AF) is frequently encountered in clinical practice, involves 1% to 3% of the patient population, has a growing prevalence [1–3], and is associated with high morbidity and mortality because of the possible complications of this arrhythmia, among them heart failure and arterial embolism [4–6]. Adequate early treatment can prevent or attenuate complications, since antiarrhythmic drugs help to avoid tachymyocardiopathy and anticoagulants decrease the risk of embolism substantially [7,8]. Nonetheless, antiarrhythmic drugs have side effects that must be considered [9–11], and antithrombotic treatment can interact with foods and other medications, requires frequent monitoring, and can cause haemorrhage [12].

Many individuals with AF are treated in emergency departments (EDs), a setting in which medication is often prescribed or changed because these patients typically present with first onset AF, with major symptoms despite AF treatment, or with complications related to the arrhythmia or to the prescribed treatment [13–15]. Furthermore, patients with AF discharged from the ED have a suboptimal knowledge about their disease [16,17]. All of this points to a special need for individuals with AF to receive appropriate patient education in the ED setting.

In the case of autonomous individuals responsible for their own self-care, patient participation is essential to optimize treatment effectiveness and minimize complications of the arrhythmia and of treatment. Having –and understanding– the necessary information is a key element in achieving appropriate self-care, and nursing has a crucial role in patient education. Although always present in modern nursing, this educational role, which greatly contributes to patient empowerment, has been reinforced in recent years, mainly in chronic cardiovascular diseases [18,19]. However, studies in AF patients are limited, and almost nonexistent in the ED.

A previous study by our group showed that a nursing intervention to educate patients with AF about self-care upon ED discharge reduces the incidence of hospitalizations and AF-related complications at 3-month follow-up [20]. The objective of the present study was to determine if this intervention had a continued impact on the incidence of hospitalizations and AF-related complications after one year of follow-up.

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2. Patients and methods

2.1. Study design and population

This was a prospective study of a randomized, controlled intervention carried out in the ED of a tertiary hospital in Barcelona (Catalonia, Spain). The methods were previously detailed [20] and are briefly described below.

The study included patients aged 18 years and older who came to the unit for any reason between 1 November 2011 and 31 December 2012, received a diagnosis of AF based on electrocardiography, and were being discharged at the time of inclusion. Patients were included only once during the study period, regardless of the number of ED visits. In our setting, medical information at discharge is given by the doctor responsible for the patient's care. The role of emergency nurses in Spain consists mainly of patient monitoring, administration of any kind of treatment, blood extraction for analysis, and ensurance of overall patient wellbeing. This role is equivalent to the role of a staff nurse band 5 in UK.

Patients whose clinical and/or cognitive status precluded their participation in the educational process were excluded from the study. All participants provided signed informed consent. The study was approved by the hospital's Ethics Committee.

The selected population was invited to participate, and then was randomized to the two study groups, intervention and control, according to an electronically generated list. All patients were interviewed and their medical records were reviewed. When the usual caregiver was a third person, this individual was also interviewed. The following variables were recorded (Table 1): 1) demographic variables (sex, age, school education, social support, dependence according to Barthel's index score), 2) clinical variables (cardiovascular risk factors and other comorbidities), 3) variables related to the index episode (reason for consultation, clinical assessment at the ED, antiarrhythmic and antithrombotic treatment at admission and at discharge), and 4) AF knowledge at the time of inclusion.

The ED consultation was considered AF-related when the patient indicated any of the following: symptoms related to the arrhythmia (palpitations, chest pain, dyspnoea), complications of the arrhythmia or its treatment, or referral to the ED because of an incidental finding of AF. Fig. 1 illustrates this variable.

To evaluate the patient's AF knowledge, the researchers asked the following questions: a) Do you know that you have heart disease? (Yes/No); if yes, b) Do you know the specific name of this disease? (Yes–able to recognize having an arrhythmia or AF; No–do not know about an arrhythmia); c) Do you know the treatment you receive (for this arrhythmia/disease)? (Yes–able to name all the medicines taken for the arrhythmia; Partial–able to name at least one medication taken; No–not able to name any of the medications taken for arrhythmia); d) do you know the precautions you must take because of your illness and/or treatment? (Yes–named all necessary precautions for the arrhythmia and treatment; Partial–named at least one precaution for the arrhythmia and/or treatment; No, not able to name any precautions for the arrhythmia or its treatment), and e) Do you know what the symptoms are and why you should go to the ED? (Yes–named all signs and symptoms of alarm; Partial–was able to name at least one of the alarm signs and symptom; No–unable to name any sign and alarm symptoms).

2.2. Intervention

As previously described in detail [20], all patients were treated as determined by the responsible physician and received the discharge information he or she considered appropriate. In addition, patients in the intervention group received training from a nurse previously instructed on the subject.

Table 1
Clinical characteristics of study participants.

Characteristic*	Total n = 240	Intervention n = 116	Control n = 124
Age (years ± SD)	76.1 ± 10.9	74.8 ± 11.6	77.3 ± 10.1
Sex (W/M)	138/102	67/49	71/53
Educational attainment			
Primary school (n/%)	168 (70)	78 (67.2)	90 (72.6)
Secondary school a (n/%)	27 (11.3)	14 (12.1)	13 (10.5)
Postsecondary education (n/%)	45 (18.8)	24 (19.3)	21 (16.9)
Social support			
Good (n/%)	173 (72.1)	81 (69.8)	92 (74.2)
Partial (n/%)	60 (25)	31 (26.7)	29 (23.4)
No support (n/%)	7 (2.9)	4 (3.4)	3 (2.4)
Barthel Index (points ± SD)	91.5 ± 19.7	93.2 ± 17	89.8 ± 21.9
HTA (n/%)	163 (67.9)	79 (68.1)	84 (67.7)
Diabetes mellitus (n/%)	52 (21.7)	21 (18.1)	31 (25)
Heart disease (n/%)	34 (14.2)	13 (11.2)	21 (19.9)
Heart failure (n/%)	24 (10)	11 (9.5)	13 (10.5)
Type of AF (n/%)			
First episode	37 (15.4)	20 (17.2)	17 (13.7)
Paroxysmal	58 (24.2)	33 (28.4)	25 (20.2)
Persistent	5 (2.1)	1 (0.8)	4 (3.2)
Permanent	140 (58.3)	62 (53.4)	78 (9)
Reason for consultation (n/%)			
Related to AF			
Symptoms	152 (63.3)	79 (68.1)	73 (62.9)
Complications	72 (30)	44 (37.9)	28 (22.6)
of AF	67 (27.9)	37 (31.9)	40 (32.3)
of treatment	47 (19.6)	17 (14.7)	30 (24.2)
Casual diagnosis	20 (8.3)	10 (8.6)	10 (8.1)
Unrelated to AF	13 (5.4)	8 (6.9)	5 (4.0)
	88 (36.7)	37 (31.9)	51 (41.1)
Antiarrhythmic therapy (n/%)			
None	70 (29.28)	34 (14.22)	36 (15.06)
Digoxin	56 (23.43)	25 (10.46)	31 (12.97)
Amiodarone	25 (10.46)	14 (5.85)	11 (4.60)
Beta-blockers	74 (30.96)	36 (15.06)	38 (15.89)
Calcium channel blockers	32 (13.38)	13 (5.43)	19 (7.94)
Antiarrhythmics (Class IC)	13 (5.43)	7 (2.92)	6 (2.51)
Anticoagulant therapy (n/%)	156 (65.0)	69 (59.5)	87 (70.2)

SD: standard deviation; W/M: women/men; Ed.: education; HTA: arterial hypertension; AF: atrial fibrillation.
* All p non-significant.

Since various participating nurses provided the patient education, the information was standardized according to ESC guidelines [21] and approved separately by two expert physicians. It included the following: 1) a basic explanation of the arrhythmia; 2) the possible AF-related or treatment-related complications that could arise: heart failure, stroke or systemic embolism, brady or tachyarrhythmia, hemorrhage; 3) precautions to consider: take the treatment daily, make follow-up visits to the treating doctor, do the required blood tests, monitor the pulse and perform cardiovascular exercise regularly, avoid alcohol and tobacco, and 4) warning signs and symptoms: palpitations, bradycardia, dyspnoea, chest pain, syncope, hemorrhage. The patients were shown how to take their pulse manually and were encouraged to do so at least once a week. The nurse also recommended a follow-up visit with the family doctor or other physician. Finally, the nurse gave to the patients a personalized leaflet about the medication prescribed at discharge, including a summary of the information provided during the educational intervention (annex 1). Time spent in this intervention (mean ± standard deviation), measured in a pilot with 13 patients included during a week, was 7.9 ± 2.0 min.

All participating nurses had more than 5 years' experience in the ED and received 4 h of instruction about the study and the patient information to be provided. A doctor and a nurse with expertise in AF and cardiology led the intervention and maintained

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