INTRODUCTION

1. Background and significance

Atrial fibrillation is the most common sustained cardiac rhythm disturbance encountered in clinical practice. The overall prevalence of atrial fibrillation in the United States is 0.4% of the general population (Coumel, 1996) and nearly 9% in elderly patients (Jung & Luderitz, 1998). Furthermore, the number of hospital admissions for atrial fibrillation is more than 1 million each year, an incidence higher than that of any other cardiac arrhythmia in the United States (Tanigawa et al., 1991; Bialy, Lehmann, & Schumacher, 1992). In addition to its high prevalence and the associated high number of hospital admissions, the presence of atrial fibrillation with other diseases increases their mortality rate by 200%. The consequences of atrial fibrillation, such as systemic em-
bolism, stroke, hemodynamic dysfunction, and cardiomyopathy, are associated with significant mortality (Kannel, Abbott, Savage, & McNamara, 1982; Golzari, Cebul, & Bahler, 1996).

Despite the significant impact of atrial fibrillation on health care and on the population, it has been generally considered a benign disorder in clinical practice and is often not seen as being as important as ventricular arrhythmias in clinical care nor in health care research. Morbidity and mortality rates of atrial fibrillation have been reported in the literature. However, few studies document the actual impact of atrial fibrillation on the patient. Thus, there is a paucity of published studies that have evaluated the perspective of patients with atrial fibrillation or patients’ perceptions or responses to diagnosis, treatment, or prognosis of atrial fibrillation in health care literature and clinical studies.

Among diverse nursing phenomena, uncertainty is a relevant phenomenon in individuals with atrial fibrillation since the nature of the course of atrial fibrillation might be likely to be more probabilistic than any other illness. A number of research studies regarding pathophysiology and treatment of atrial fibrillation have been conducted. There is, however, no one accepted approach to the management of atrial fibrillation although pharmacological and nonpharmacological therapies have been adopted (Prystowsky et al., 1996; Grant, 1998; Waktare & Camm, 1988). In order to control ventricular rate, and to restore and maintain sinus rhythm, the combination of electrical cardioversion, antiarrhythmic medication, and AV node ablation have been applied. However, the recurrence rate of atrial fibrillation is very high (Coplen, Antman, Berlin, Hewitt, & Chalmers, 1990), and the adverse effects (e.g. psychosis, blurred vision, liver toxicity, life-threatening ventricular tachycardia, etc.) from antiarrhythmic medication are seriously harmful to patients, thus long-term uses of these drugs are avoided (Prystowsky et al., 1996; Harvey & Champe, 1992). Furthermore, to prevent thromboembolism and subsequent stroke, anticoagulation therapy using warfarin is required regardless of etiology. This therapy also has significant side effects and requires frequent bloodings and clinic visits. Throughout the above course of treatment and management of atrial fibrillation, patients may get confused, and may not be able to predict and make decisions about their future relating the illness. This lack of predictability of events or situations associated with atrial fibrillation is related to the phenomenon of uncertainty, and it may create stressful situations for patients.

2. Purpose of the Study
This study aimed to explore uncertainty in diagnosis, treatment, and prognosis of atrial fibrillation.

3. Definitions of Terms
Atrial fibrillation was conceptually defined as a type of cardiac rhythm disturbance, consisting of electrophysiologically rapid uncoordinated generation of electrical multifocal impulses by atria at a rate of 300 to 500/minute (Barker, Burton, & Zieve, 1994; Kelley, 1997). This definition was operationalized by 12-lead electrocardiogram.

Uncertainty was a cognitive state that occurs in situations in which the decision maker is unable to assign definite values to events or objects and / or is unable to predict outcomes accurately because the cues are vague, inadequate, unfamiliar, contradictory, numerous, or lacking information (Budner, 1962; Mishel, 1984). For this study, the operational definition of uncertainty was a subject’s rating of Mishel Uncertainty in Illness Scale-Community form (MUIS-C).

METHODS

1. Design
This study employed a descriptive cross-sectional survey design using a face-to-face interview method to explore uncertainty. Because the phenomenon of uncertainty in patients newly diagnosed with atrial fibrillation has not been studied, a descriptive design is appropriate. In addition, the survey method using personal interviews was adopted since this approach was expected to result in a higher response rate than questionnaires.

2. Setting
The setting for the study was the cardiology outpatient clinic and the outpatient clinic for anticoagulation therapy in MetroHealth Medical Center and University Hospitals of Cleveland, Cleveland, Ohio, USA. At the beginning of data collection, subjects were recruited from only MetroHealth Medical Center. The reason for choosing just one hospital for the data collection was that, since the same patient care protocol is used, the effect of health care providers on uncertainty could be controlled. According to Mishel’s model of uncertainty
in illness (1988), the credible authority from nurses or physicians promotes the formulation of the stimuli frame by providing information on the causes and consequences of the symptoms so that it reduces uncertainty indirectly. Therefore, subject recruitment from one hospital can minimize the extraneous effect of credible authority from health care providers on uncertainty; collecting the data within a more homogenous sample from one site rather than within a heterogeneous sample from diverse sites thus equalized the effect of authority from the health care providers. However, there were inadequate numbers of subjects available within a given time of period, and therefore University Hospitals of Cleveland was added as another recruitment site in the middle of data collection. Hence, health care provider was considered as a covariate for uncertainty and was statistically controlled.

3. Sample

A convenience sampling method was used to obtain subjects for this study. The criteria for inclusion in the study and their rationale are as follows: first, the subject must have been newly diagnosed with atrial fibrillation within 6 months prior to data collection. The reason for including only patients with acute atrial fibrillation was that the degree of uncertainty may be different by the duration of diagnosis (Mishel, 1981), and at the time of diagnosis and start of treatment, its degree may be maximum. Secondly, the subject must be able to speak and read English in order to understand the study questionnaires and to answer the questions. Thirdly, the subject must be an adult, age 18 or older. Patients who meet these inclusion criteria were screened for the following exclusion criteria. First, anyone who is newly diagnosed with any disease other than atrial fibrillation within the previous 3 months. Because being newly diagnosed with other diseases may affect the patient’s perceived uncertainty regarding diagnosis, treatment, and prognosis of atrial fibrillation, those newly diagnosed with any other disease will be excluded from the study. Lastly, anyone who has terminal illness which leads to death within 1 year since there is no situation more serious and uncertain than death.

4. Instrument

Uncertainty was measured by the Mishel Uncertainty in Illness Scale-Community Form (MUIS-C). The MUIS-C measures uni-dimensional uncertainty in illness within the non-hospitalized community population; thus it provides only a total scale score (Mishel, 1997). The MUIS-C consists of 23 items, and each item on the MUIS-C represents uncertainty in terms of a 5 point Likert-format scale ranging from “strongly agree” to “strongly disagree.” A possible score range of uncertainty on the MUIS-C is from 23 to 115 with a midrange score of 69 (Mishel, 1997), and the higher the score on the MUIS-C, the higher the perceived uncertainty. The mean uncertainty scores in 18 samples was reported as ranging from 42.4 to 85.5 (Mishel, 1997). In the previous studies, the reliability for the MUIS-C has been shown to be in the moderate to high range (α=.74 to .92) (Mishel, 1997). In the present study, the reliability coefficient for the MUIS-C was .86. Validity of MUIS has been demonstrated by Mishel’s finding that the scale discriminated significantly among medical, surgical, and diagnostic patient populations as predicted (Mishel, 1981). The construct validity was also supported by items clustering into two factors (multi-attributed ambiguity & unpredictability) consistent with theoretical predictions (Mishel, 1981; Mishel, 1984).

5. Data collection procedure

The subjects for this study were recruited from MetroHealth Medical Center and University Hospitals of Cleveland by the investigator. The investigator identified patients newly diagnosed with atrial fibrillation by daily visiting or by calling nurses in the outpatient clinic for anticoagulation therapy or in the cardiology outpatient clinic. The investigator reviewed patients’ charts to confirm subject eligibility based on subject inclusion and exclusion criteria. Once subject eligibility was determined, the subjects were approached by the investigator on the day of the subject’s clinic appointment. If subjects were interested in participating in the study, they were interviewed by the investigator.

6. Human subjects protection

The present study was approved by the Frances Payne Bolton School of Nursing Committee on Human Subjects Review board and by the review board for protection of human subjects of MetroHealth Medical Center and University Hospitals of Cleveland. Potential subjects were given both verbal information and a written summary of the study before being asked to participate in the study. If a subject agreed to participate in the study, the subject read the informed consent form, and
the subject was asked to sign the consent form.

7. Data analysis

The data was analyzed by the Statistical Package for Social Science software program. Univariate descriptive statistics were examined including the frequency distribution, the central tendency, and the dispersion of the scores in order to identify missing data, outliers, and errors in data entry. In order to control the effect of time since diagnosis and health care provider respectively on uncertainty, t-test was utilized.

RESULTS

1. Characteristics of Sample

The demographic characteristics of the sample for the present study are shown on Table 1, including age, gender, race, marital status, education, period since diagnosed, and health care provider.

A total of 81 subjects were recruited for this study. Their mean age was 67.3 years old, and three-fourths (74.1%) were over age 60. Subjects were equally distributed by gender, and the majority (88.9%) were Caucasian. Most subjects (81.5%) were diagnosed with atrial fibrillation within 3 months previous to data collection. Three-fourths (76.5%) of the sample received their health care from MetroHealth Medical Center, and the rest from University Hospitals of Cleveland. Because time since diagnosis and health care provider could respectively influence uncertainty, differences between groups in time since diagnosis (within 3 months and more than 3 months) and health care provider (MetroHealth Medical Center and University Hospitals of Cleveland) were examined. There was no significant difference in uncertainty between those with a diagnosis of 3 months or less (M=62.88, SD=10.85) and those with a diagnosis of more than 3 months (M=61.40, SD=10.91). However, there was a significant difference in uncertainty between those with MetroHealth Medical Center (M=64.65, SD=10.95) and those with University Hospitals of Cleveland (M=55.95, SD=7.21) as their health care provider.

2. Uncertainty

As shown in Table 2, the mean of uncertainty in the sample was 62.60 with the standard deviation of 10.81. Subjects had moderate uncertainty.

DISCUSSION

From the findings of the present study, it was demonstrated that uncertainty existed in patients with atrial fibrillation, and this was considered to be part of patients’ responses to atrial fibrillation. Uncertainty in patients with atrial fibrillation (M=62.6, range 46-87) was higher than that reported in other disease populations such as bowel resection surgery (M=42.4), breast cancer (M=33.7), coronary artery bypass surgery (M=58.8), myocardial infarction (M=51.5), and renal disease (M=52.3). However, it was lower than the level of uncertainty in patients with cardiac arrest (M=72.6), epilepsy (M=74.8), lupus (M=73.2), and HIV disease (M=63.7). The magnitude of uncertainty perceived by atrial fibrillation patients was moderately high compared to other clinical populations. This higher uncertainty may be associated with the public’s ignorance about atrial fibrillation and the nature of the course of atrial fibrillation.
Atrial fibrillation has been less understood by the public compared to other diseases, including coronary heart disease, various cancers, and surgeries, since it is not physically seen on pictures by diagnostic tests but is associated with the complicated electrical movement of heart. This unclear view of atrial fibrillation may create the uncertainty documented in this study.

The treatments of atrial fibrillation are very complicated and are individualized for each patient depending on underlying clinical circumstances. There is no one accepted approach to the management of atrial fibrillation although pharmacological and nonpharmacological therapies have been adopted, including antiarrhythmic drug therapy, anticoagulation therapy, electric cardioversion, and AV node ablation (Prystowsky et al., 1996; Grant, 1998; Waktare & Camm, 1988). The availability of these diverse options for the treatment and management of atrial fibrillation may contribute to the patients' uncertainty. In addition, the recurrence rate of atrial fibrillation is very high and three-fourths of patients revert to atrial fibrillation after cardioversion if not treated with the usual antiarrhythmic agents (Coplen, Antman, Berlin, Hewitt, & Chalmers, 1990), and reliable predictors for recurrence are unknown. Therefore, patients are likely to be confused and uncertain about complex treatments and prognosis, and they may have varied expectations of treatment and prognosis after diagnosis. A clear idea of what will happen may not be possible and patients, therefore, may not be able to make decisions about a course of action (Hilton, 1992). This lack of predictability of events or situations associated with atrial fibrillation is related to the uncertainty, and it may create stressful situations for patients. It has been well documented that uncertainty may cause a great deal of psychosocial stress and enhance the personal and family hardship (Strauss et al., 1984; Lazarus & Folkman, 1984; Mishel, 1981; Shalit, 1977; Suls & Mullen, 1981). Increased uncertainty has been associated with increased stress (Mishel, 1981; Mishel, 1984; Davis, 1990), more psychological mood disturbance (Christman et al., 1988; Christman, 1990; Jessup & Stein, 1985; Mishel & Braden, 1987; Mishel, Hostetter, King, & Graham, 1984; McCain & Cella, 1995; Mullins et al., 1995; Wineman, Schwetz, Goodkin, & Rudick, 1996), increased anxiety (Warrington & Gottlieb, 1987; Webster & Christman, 1988; Wong & Bramwell, 1992), lower level of life quality (Carroll, Hamilton, & McGovern, 1999), reduced coping effectiveness (Bennett, 1993), and perception of diminished or lower health status (Carroll, Hamilton, & McGovern, 1999). Therefore, uncertainty in illness has been identified as the single greatest source of psychosocial stress to patients (Kroocher, 1985).

Consequently, there was a reasonable basis for hypothesizing that uncertainty was a relevant phenomenon to atrial fibrillation patients, suggesting that more attention should be given to the atrial fibrillation population in order to intervene in uncertainty and to produce better outcomes. Despite the theoretical relevance of uncertainty to atrial fibrillation, until recently little was known about the population with atrial fibrillation because atrial fibrillation was regarded as a rather trivial disease, compared with other life-threatening diseases, such as coronary heart disease, congestive or hypertrophic cardiomyopathy, and mitral valvular diseases. Furthermore, the lack of information regarding the electrocardiac pathophysiology of atrial fibrillation has aggravated the nonchalance towards atrial fibrillation. Thus, no work has been done related to the patient's perspective of atrial fibrillation so far. This study was the first trial to explore patients' responses to atrial fibrillation and uncertainty. As proposed, this study demonstrated that uncertainty was relevant and significant as a component of patients' responses to atrial fibrillation.

**CONCLUSION, LIMITATION & SUGGESTION**

The present study aimed to explore uncertainty in diagnosis, treatment, and prognosis of atrial fibrillation. The finding of this study indicated that uncertainty was moderately high in atrial fibrillation patients compared to other clinical populations. The present study was the first trial to explore the patients' perspective of atrial fibrillation, and the finding provided clinical nurses with information that helps nurses to understand individuals with atrial fibrillation and identify nursing problems nurses need to assess and to address. Furthermore, information on persons' perception of atrial fibrillation guides other future nursing research studies to examine and evaluate nursing interventions for individuals with atrial fibrillation. In addition, findings from these studies will substantially contribute to the body of nursing knowledge by expanding the scope of the nursing discipline through identifying new phenomena or concepts. Accordingly, these studies will help fill the gaps in nursing knowledge between what we have known and what we do not know about patients with atrial fibrillation.
In the present study, there were two limitations that had to be recognized. First, this study utilized a convenience sampling method. Secondly, subjects were predominantly Caucasian, and African-American patients were underrepresented. Both convenience sampling method and demographic characteristic of the sample limited the ability to generalize the results of this study beyond the sample. Thus, the results of this study should be interpreted with caution because of the non-random sampling technique and demographic characteristics of the sample.

Lastly, the future studies that confirm the finding related to the level of uncertainty in the population of atrial fibrillation patients through replication were recommended. Moreover, the research studies that examine the factors influencing uncertainty including personality dispositions (health locus of control, learned resourcefulness, a sense of mastery, and so forth) and that determine a consequence of uncertainty were needed.

References


electrograms during sinus rhythm in patients with paroxysmal atrial fibrillation and sick sinus node syndrome. *Journal of American College of Cardiology, 17*, 403-408.


