Abstract 57
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Dyspepsia and Disease Burden Among Patients with Atrial Fibrillation (AF)

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INTRODUCTION

- Anticoagulant therapy is often prescribed for patients with atrial fibrillation (AF) to help reduce their risk of stroke, particularly patients with high $CHADS_2$ scores[1,2]
- Patients with AF are highly likely to have comorbidities, including gastrointestinal conditions, such as dyspepsia.[2] Underuse of anticoagulation therapy among appropriate patients may occur because they may be intolerant of currently available therapies

OBJECTIVES

- To determine the prevalence of dyspepsia among patients with AF
- To assess differences in the use of anticoagulants and health outcomes between AF patients with and those without dyspepsia

METHODS

Study Design

- This study was conducted using the 2009 (N=75,000) wave of the National Health and Wellness Survey (NHWS). The NHWS is a self-administered, Internet-based questionnaire from a nationwide sample of adults (aged ≥18 years) that is stratified by gender, age, and race/ethnicity to represent the demographic composition of the US adult population
- 1297 patients reported being diagnosed with AF and were included in the analyses

Study Measures

- Demographics
  - Age; sex; race/ethnicity; education; income; body mass index
- Patient characteristics
  - Smoking; alcohol use; exercise; years diagnosed with AF; use of prescription medication for AF
    - Comorbidities
      - Dyspepsia; reported diagnosis of the any of the following: ulcers, abdominal bloating, abdominal pain, gastroesophageal reflux disease/acid reflux, or heartburn
- Charlson Comorbidity Index[3]
- $CHADS_2$ score
  - Comprises 5 components: diagnosed congestive heart failure, hypertension, diabetes mellitus, age ≥75 years, and prior stroke or mini-stroke/transient ischemic attack
  - The presence of each component is associated with 1 point, except for prior stroke, which is associated with 2 points. This results in a total score between 0 and 6, with higher scores indicating a greater risk for stroke
- Health outcome
  - Quality of life
    - Health-related quality of life was assessed using the Physical Component Summary (PCS) and Mental Component Summary (MCS) scores from the Short Form (SF)-12 version 2.[4] Both the PCS and MCS were normed to the population (mean ± standard deviation [SD] = 50 ± 10)
  - Work productivity
    - Work productivity was assessed using the Work Productivity and Activity Impairment (WPAI) questionnaire.[5] Four subscales – absenteeism (time missed from work), presenteeism (impairment at work), overall work impairment, and activity impairment – were generated as percentages (0–100%), with higher values indicating greater impairment
  - Healthcare resource use
    - Number of emergency department visits, hospitalizations, and physician visits in the past 6 months

Statistical Analysis

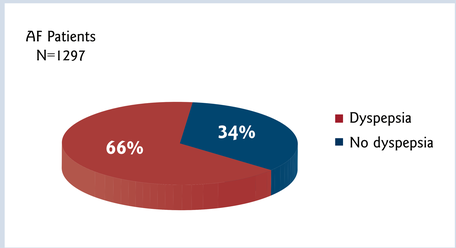
- Differences between the two groups were compared on all demographic characteristics and health outcome variables
  - Frequencies and percentages were reported for categorical variables (tested using Chi-squared tests), and means and SDs were reported for continuous variables (tested with analysis of variance). Multiple regressions were used to predict MCS and PCS, while generalized linear models, specifying a negative binomial distribution and a log-link function, were used to predict work productivity and resource use variables, controlling for demographics and patient characteristics. Generalized linear models were selected because of the pronounced skew of those outcomes

RESULTS

Bivariate

- Over one-third (34%) of patients with AF reported a diagnosis of dyspepsia **(Figure 1)**
- AF patients with dyspepsia were younger (62.9 vs 66.0 years, $P<0.05$) and more likely to be female (43% vs 31%, $P<0.05$), and had higher $CHADS_2$ score (1.9 vs 1.4, $P<0.05$) than those without dyspepsia **(Table 1)**
- The difference in $CHADS_2$ score was also statistically significant in patients aged >65 years (2.0 vs 1.5, $P<0.05$) and in those with $CHADS_2$ score ≥2 (3.0 vs 2.5, $P<0.05$)

Figure 1. Prevalence of dyspepsia in the atrial fibrillation patient population

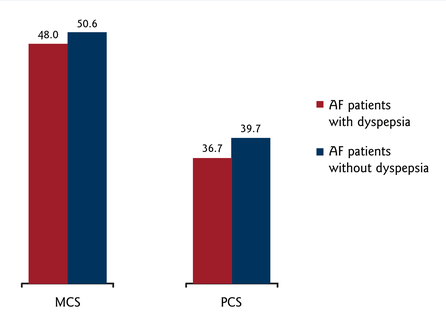


- Despite the higher stroke risk as indicated by the higher $CHADS_2$ scores, significantly fewer AF patients with dyspepsia than those without dyspepsia were taking either a prescription medication to treat AF (67% vs 73%, $P<0.05$) or an anticoagulant for stroke prevention (35% vs 47%, $P<0.05$)

Multivariable

- Using a logistic regression model controlling for demographics and patient characteristics, a decreased risk of dyspepsia was associated with being male (b=–0.56; $P<0.001$) and using anticoagulant therapy (b=–0.52; $P<0.05$). An increased risk of dyspepsia was associated with a higher $CHADS_2$ score (b=0.14; $P<0.05$) and Charlson Comorbidity Index score (b=0.14; $P<0.001$)
- Dyspepsia was associated with significantly lower levels of both mental (b=–2.57; $P<0.001$) and physical quality of life (QoL, b=–2.96; $P<0.001$) **(Figure 2)**. Both effects approached the clinically significant level of 3 points

Figure 2. Adjusted differences in health-related quality of life in atrial fibrillation patients with vs those without dyspepsia



MCS, Mental Component Summary; PCS, Physical Component Summary.

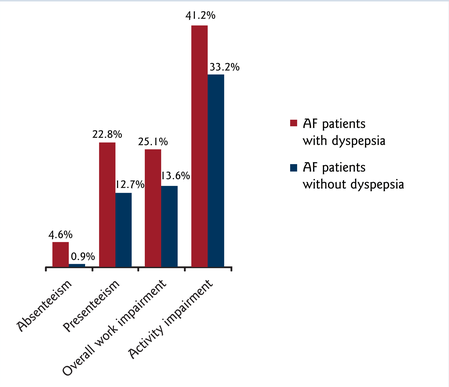
- Rates of absenteeism were almost 5 times higher in patients with dyspepsia compared with patients without dyspepsia (rate ratio [RR]=4.82; $P<0.01$) **(Figure 3)**
- Presenteeism (RR=1.79; $P<0.01$), overall work productivity (RR=1.85; $P<0.01$), and activity impairment (RR=1.24, $P<0.01$) were between 24% and 85% higher among patients with dyspepsia
- Increased healthcare resource utilization was associated with dyspepsia. Emergency department visits (RR=1.29; $P<0.05$) and visits to traditional healthcare providers (RR=1.24; $P<0.0001$) were 29% and 24% higher, respectively, for patients with dyspepsia compared with those without dyspepsia **(Figure 4)**. Differences in the number of hospitalizations were not significant (RR=1.20, $P=0.15$)

Table 1. Differences in demographics and patient characteristics in AF patients with vs those without dyspepsia

	AF patients with dyspepsia		AF patients without dyspepsia	
	n=446		n=848	
	n	%	n	%
Female	193	43%	260	31%
Taking an anticoagulant	158	35%	394	47%
Taking prescription medication for AF	300	67%	619	73%
	Mean	SD	Mean	SD
Age	62.9	12.9	66.0	11.7
$CHADS_2$ score	1.9	1.2	1.4	1.0

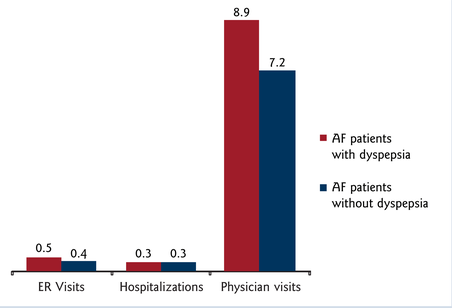
AF, atrial fibrillation; SD, standard deviation.

Figure 3. Adjusted differences in health-related WPAI in atrial fibrillation patients with vs those without dyspepsia



WPAI, Work Productivity and Activity Impairment.

Figure 4. Adjusted differences in healthcare resource utilization in atrial fibrillation patients with vs those without dyspepsia



ER, emergency room.

CONCLUSIONS

- Over one-third of patients with AF suffer from dyspepsia. These patients have a significantly higher $CHADS_2$ score, yet they are less likely to use anticoagulant therapy, despite their greater need
- Similarly, AF patients with comorbid dyspepsia report significantly worse health-related QoL, poorer work productivity, and more healthcare resource use
- Given the prevalence and burden of dyspepsia in AF patients, physicians need to take it into account when considering appropriate therapy

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