

Prevalence of Atrial Fibrillation and Its Clinical Outcomes Among Patients With Type 2 Diabetes and NASH

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BACKGROUND

- Type 2 diabetes (T2DM) affects an estimated 30.8 million Americans
- Its prevalence is expected to double by 2050
- Nonalcoholic steatohepatitis (NASH) and T2DM commonly coexist
- T2DM and NASH are associated with increased cardiovascular disease and are independent risk factors for atrial fibrillation (AF)

OBJECTIVE

- To investigate the prevalence of AF and its impact on clinical outcomes and overall healthcare burden among patients with concomitant T2DM and NASH

METHODS

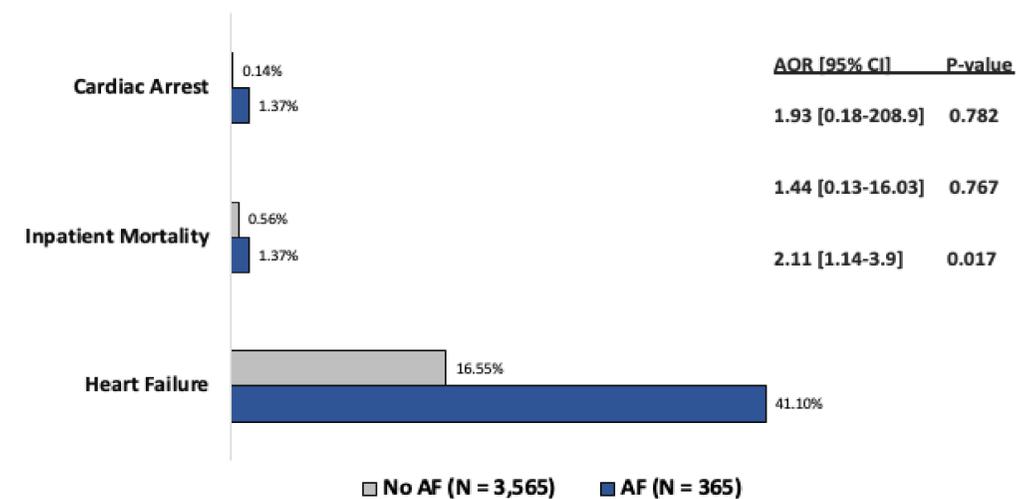
- We queried the 2017-2018 National Inpatient Sample (NIS) for adult patients hospitalized with T2DM with history of NASH as principal diagnosis, with and without AF as a secondary diagnosis
- The primary outcome was inpatient mortality
- Secondary outcomes were cardiac arrest (CA), heart failure (HF), length of stay (LOS), and total hospital cost (THC)
- Multivariable logistic regression analysis was applied to estimate clinical outcomes
- A p-value of <0.05 was considered significant

RESULTS

Table 1. Characteristics and Comorbid Conditions Among Patients with T2DM with History of NASH with vs without AF

CHARACTERISTICS	AF (N=365)	No AF (N=3,565)	P-VALUE
Age, year, Mean [CI]	66.8 [64.5-69.0]	57 [56.3-58.3]	0.04
Male, % (N)	53.4% (194)	37.9% (1,351)	0.009
Race/Ethnicity, % (N)			0.4
White	80.2% (292)	72.0% (2,566)	
Black	8.5% (31)	8.6% (306)	
Hispanic	8.5% (31)	14% (499)	
Other	2.8% (10)	5.4% (192)	
Comorbidities, % (N)			
Obesity	38.36% (140)	41.37% (1,474)	0.6
Hypertension	24.66% (90)	41.66% (1,485)	0.005
Chronic kidney disease	52.05% (189)	34.08% (1,214)	0.002
Coronary artery disease	38.36% (140)	20.48% (730)	0.0005

Figure 1. Clinical Outcomes in Patients with T2DM with History of NASH with vs without AF



RESULTS

- During the study period, there were 3,930 patients admitted with T2DM and NASH, of which 9.3% had AF
- AF vs No AF cohorts were mean age of 66.8 years [CI 64.5-69.0] vs 57 years [CI 56.3-58.3]; males (53.4% vs 37.9%); white (80.2% vs 72.0%), black (8.5% vs 8.6%), and Hispanic (8.5% vs 14%) (Table 1)
- Compared to the No AF cohort, patients with AF had a higher prevalence of HF (41.1% vs 16.55%; p=0.017)
- There were no significant differences in inpatient mortality, CA (Figure 1), LOS or THC measured between cohorts (Table 2)

Table 2. Length of Stay and Total Hospital Cost Among Patients with T2DM with History of NASH with vs without AF

OUTCOMES	AF (N=365)	No AF (N=3,565)	ADJUSTED IRR	95% CI	P-VALUE
Length of Stay	6 days	5 days	1.07	0.86-1.34	0.534
Total Hospital Cost	\$13,018	\$11,259	1.01	0.78-1.31	0.942

DISCUSSION & CONCLUSIONS

- Our results show that AF in patients with underlying T2DM and NASH is associated with a higher prevalence of HF but not mortality
- Possible reasons for more prevalent HF include a greater burden of atherosclerosis, ventricular hypertrophy, left atrial remodeling and pericardial fat deposition among patients with concomitant T2DM and NASH
- Further investigation determining the HF subtypes affecting diabetic patients with AF and NASH is necessary
- Serum biomarkers such as Natriuretic Peptide and high sensitivity troponins as well as echocardiography are likely to be helpful when evaluating HF risk in this patient population