

## Incidence of Atrial Fibrillation (AF) in Patients of Acute Coronary Syndrome

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### ABSTRACT

**Introduction:** Atrial fibrillation is common among patients with cardiovascular disease and is a frequent complication of the acute coronary syndrome.

**Objective:** In this study our main goal is to assess the incidence of AF in patients of acute coronary syndrome.

**Method:** This retrospective observational cohort study was done at Dhaka medical college and hospital from December 2010 to December 2011 where 100 patients (male=73, female=27) were diagnosed with of ACS and AF. All data were entered on the Statistical Package for Social Science (SPSS) and analyzed.

**Results:** During the study most of the patients were belong to 51-60 age group (53%) and 53% patients developed atrial fibrillation after admission. Also new onset AF patient's hospital stay rate was higher.

**Conclusion:** After many analyses we can said that, incidence

of new-onset AF was more common in patients presenting with ACS.

**Keyword:** Atrial Fibrillation, Acute Coronary Syndrome.

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### INTRODUCTION

Atrial fibrillation is an irregular and often rapid heart rate that can increase your risk of stroke, heart failure and other heart-related complications. During atrial fibrillation, the heart's two upper chambers (the atria) beat chaotically and irregularly out of coordination with the two lower chambers (the ventricles) of the heart. Atrial fibrillation symptoms often include palpitation, shortness of breath and weakness. In Europe and North America, as of 2014, it affects about 2 to 3% of the population. This is an increase from 0.4 to 1% of the population around 2005. In the developing world, about 0.6% of males and 0.4% of females are affected. The percentage of people with AF increases with age with 0.1% under 50 years old, 4% between 60 and 70 years old, and 14% over 80 years old being affected.<sup>3</sup> A-fib and atrial flutter resulted in 193,300 deaths in 2015, up from 29,000 in 1990.<sup>1</sup> It is one of the most common cardiovascular diseases worldwide, and the global burden of atrial fibrillation is increasing.

The acute coronary syndrome is a potent risk factor for atrial fibrillation, with atrial fibrillation occurring in up to 1 in every 5 patients hospitalized with an acute coronary syndrome. To date, most investigations into the magnitude and impact of atrial fibrillation in the setting of an acute coronary syndrome have been limited by modest sample sizes, short duration of follow-up, and/or inclusion of less generalizable patient populations. AF occurs in patients who are older with severe coronary artery disease and is associated with higher 30 day and one year mortality rates than for those patients without AF.<sup>2</sup>

Now a day's new onset atrial fibrillation (AF) is a common complication of acute coronary syndrome (ACS), with a prevalence ranging of from 7–18%, and is associated with a higher incidence of in-hospital congestive heart failure. In this study our main objective is to evaluate the incidence of AF in patients of acute coronary syndrome.

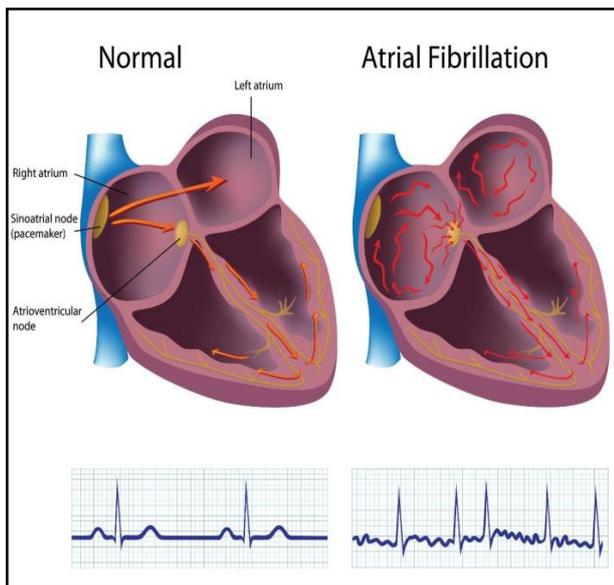


Figure-1: Atrial fibrillation (AF)<sup>3</sup>

**OBJECTIVES**

**General Objective**

- To evaluate the incidence of AF in patients of acute coronary syndrome.

**Specific Objective**

- To identify ACS Type in new-onset AF
- To evaluate duration of hospital stay in new-Onset AF

**METHODOLOGY**

**Study Type**

This study was a retrospective observational cohort study.

**Study Place and Period**

This study was carried out from December 2010 to December 2011 at Dhaka medical college and hospital where 100 patients were studied. (male = 73, female = 27)

**Method**

During the experiment all registered patients were diagnosed with of ACS and AF. Patients with AF were divided according to the timing of the arrhythmia: every patient who presented with AF for the first time (i.e., who did not have previously documented AF) at admission or during hospital stay was considered to have new-onset AF. Demographic, clinical, laboratory, echocardiographic and coronary angiographic data were collected prospectively and recorded in a computerized database, in accordance with our department's protocol for patients admitted to the coronary care unit with ACS. Pre-existing AF data collect from secondary sources.

**Data Analysis**

Data of the patients were entered on the Statistical Package for Social Science (SPSS). Quantitative data were presented as mean and standard deviation, while the qualitative data were presented as number and percentage. Paired t-test and chi square test were used to assess differences between quantitative and qualitative data.

**RESULTS**

In figure-2 shows age distribution of the patients where most of the patients were belong to 51-60 age group (53%) which was 47% higher than 31-40 age group.

In table-1 shows gender distribution of the patients where most of the patients were male rather than female which were 73(63.5%). In table-2 shows medical history of the patients where most of the patients had hypertension and angina than other diseases. In figure-3 shows ACS Type in New-Onset AF and pre-existing AF where in both cases Non-ST-elevation myocardial infarction was higher than other types of ACS.

In figure 4 shows duration of hospital stay, (days) in new-Onset AF and Pre-existing AF of acute coronary syndrome where new onset AF patient's hospital stay rate was higher.

In table-4 shows therapeutic strategy according to AF type where patients with pre-existing AF treated by rhythm control were more likely to be prescribed antiarrhythmic therapy to maintain sinus rhythm, although without significance. At discharge, new-onset AF patients were less often anticoagulated than those with pre-existing AF (p<0.001). In table-5 shows in-hospital and follow-up adverse outcomes in patients without AF with new-onset and pre-existing AF groups of acute coronary syndrome where new-onset AF was associated with significantly worse in-hospital adverse outcomes of death, heart failure, ischemic stroke and major bleeding compared to patients with no arrhythmia.

Table 1: Gender of the patients

Gender	Frequency	Percent
Male	73	63.5%
Female	27	36.5%

Table-2: Medical history of the patients

Medical history of the patients	Percent
Angina	24%
Hypertension	35%
Diabetes mellitus	19%
MI	12%
PCI	10%
Total	100%

Table 3: Types of ACS

Types	Percent
Unstable Angina	1%
NSTEMI	2%
Anterior MI	1%
Inferior MI	1%
Anteroseptal	1%
Total	6%

Table-4: Therapeutic strategy according to AF type

Variable	New-Onset AF, percent	Pre-existing AF, percent
Rate control	29.4%	72.7%
Rhythm control	70.6%	27.3%
Antiarrhythmic at discharge	18.0%	40.0%
Anticoagulation at discharge	33.3%	60.0%

Source by: <http://www.revportcardiol.org/en-impact-atrial-fibrillation-type-during-acute-coronary-syndromes-articulo-S08702551150012257>

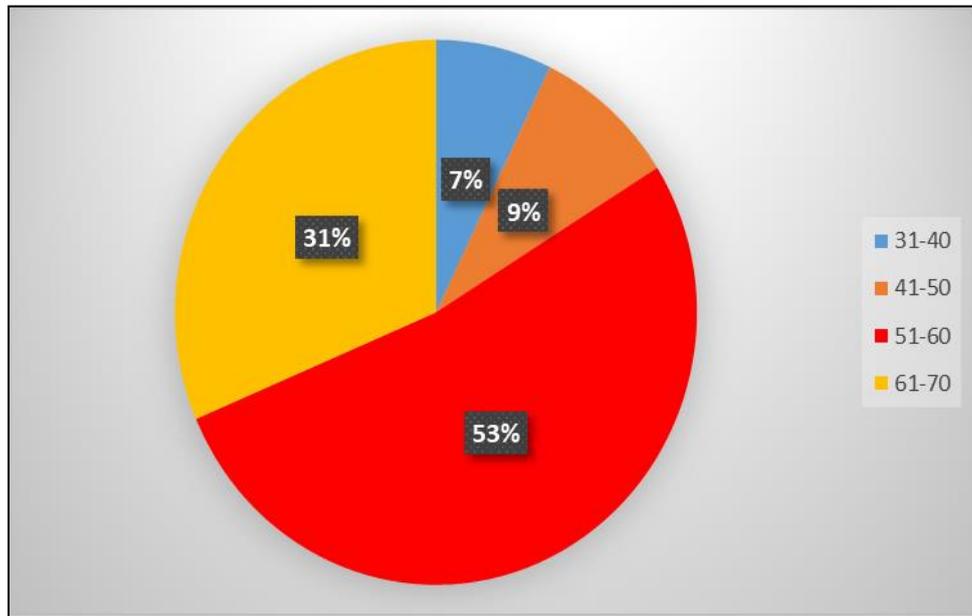


Figure-2: Age distribution of the patients.

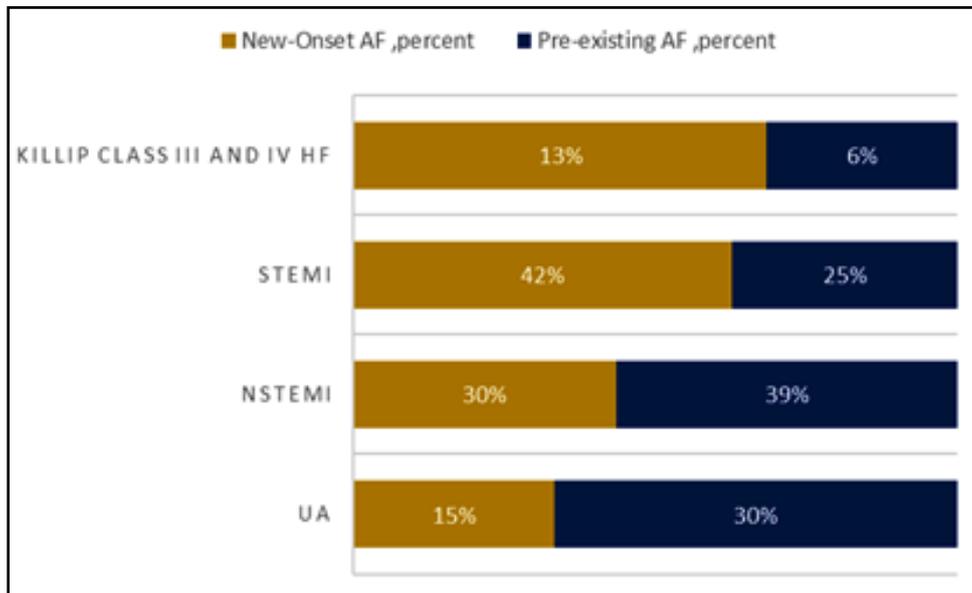


Figure-3: ACS Type in New-Onset AF

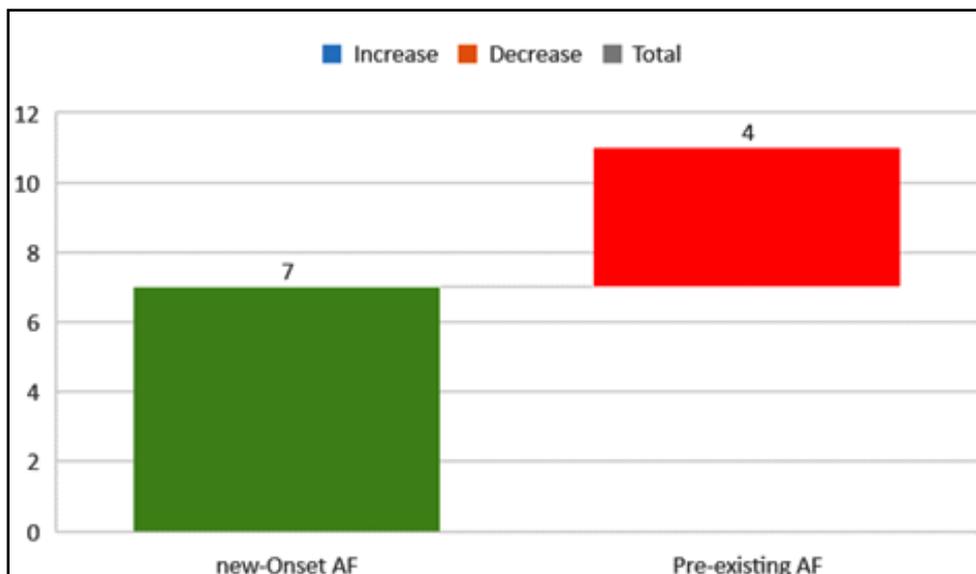


Figure 4: Duration of hospital stay in new-Onset AF

**Table 5: In-hospital and follow-up adverse outcomes in without AF with new-onset and pre-existing AF groups**

In hospital	Without AF, % (n=1174)	New-onset AF, % (n=142)	P	Pre-existing AF, % (n=57)	P
<b>Mortality</b>	4.2%	11.3%	<0.001	3.5%	0.806
<b>Heart failure</b>	27.2%	57.0%	<0.001	64.9%	<0.001
<b>Re-infarction</b>	2.5%	2.8%	0.803	1.8%	0.732
<b>Ischemic stroke</b>	0.8%	2.8%	0.020	1.8%	0.418
<b>Major bleeding</b>	2.3%	6.7%	0.015	0.0%	0.360
<b>Follow-up</b>					
<b>Mortality</b>	3.6%	6.3%	0.155	10.6%	0.014
<b>Heart failure</b>	22.8%	41.0%	<0.001	50.0%	<0.001
<b>Re-infarction</b>	3.6%	4.1%	0.818	7.9%	0.177
<b>Ischemic stroke</b>	1.0%	2.1%	0.472	2.6%	0.818

Source by: <http://www.revportcardiol.org/en-impact-atrial-fibrillation-type-during-acute-coronary-syndromes-articulo-S08702551150012257>

## DISCUSSION

From our study we found that pre-existing and new-onset atrial fibrillation is common in patients hospitalized with an acute coronary syndrome. The incidence rates of atrial fibrillation in acute coronary syndrome patients declined over the 8-year study period.<sup>4</sup> In the study most of the patients were male and we observed that atrial fibrillation was strongly associated with important adverse cardiac events, suggesting that opportunities exist for improving the treatment of patients with acute coronary syndrome and atrial fibrillation. Patients with new-onset atrial fibrillation differed from patients with pre-existing atrial fibrillation, suggesting that the underlying pathophysiology of atrial fibrillation in these populations may differ.

In one article said that incidence rates of new-onset atrial fibrillation in patients hospitalized with an acute coronary syndrome vary widely, with estimates ranging from 5 to 23% and in every 13 patients reported having a history of atrial fibrillation and 5.3% of patients developed atrial fibrillation during their acute hospitalization.<sup>5</sup> We also investigated that, older age, a greater cardiovascular risk factors were associated with atrial fibrillation in our population. Patients with prior atrial fibrillation were also more likely to have a history of coronary heart disease and prior coronary revascularization. In-hospital and discharge prescription of medications known to improve prognosis from an acute coronary syndrome were lower in patients with atrial fibrillation in comparison to patients without atrial fibrillation. Many studies also said that the most frequently encountered type was new-onset AF, which was found in more than two-thirds of AF patients. This could be due to a bias related to the definition used.<sup>6</sup> In our study we found that duration of hospital stay rate was higher in new onset of AF for ACS than previous AF patients.

## LIMITATIONS

- Duration of study was short and sample size was small.
- Most variables were determined by consulting medical records that could have been incomplete.

## CONCLUSION

From our findings we can conclude that, incidence of new-onset AF was more common in patients presenting with ACS who had high-risk clinical features and worse prognosis during hospitalization than previous AF.

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