

# ATRIAL FIBRILLATION MANAGEMENT IN RURAL HOSPITAL – A CASE REPORT

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## Abstract

**Introduction :** Atrial Fibrillation is the most common sustained arrhythmia in clinical practice, preferentially affecting elderly people. Managing atrial fibrillation is challenging, especially in a rural hospital. Despite of any limitation of facilities in rural hospital, effective and efficient management for the patient is a must.

**Case Presentation :** We report a 68-year-old woman with history of hypertension, diabetes mellitus and 2 years ago of stroke attack presented to emergency room with headache, palpitations and some vomiting episodes. Electrocardiogram result showed an atrial fibrillation. Administration of Digoxin tablet next to intravenous rehydration and Amiodarone tablet successfully restored to sinus rhythm. Hospitalization are required for daily electrocardiogram evaluation and symptoms improvement.

**Conclusion :** Determine what is cause of atrial fibrillation will lead us deciding treatment to the patient. Maintain sinus rhythm and controlling ventricular rate is important goals in managing atrial fibrillation. Since stroke is the leading cause of morbidity and mortality associated with atrial fibrillation, consideration strategies of stroke prevention also important.

**Keyword :** atrial fibrillation, management, risk factor, stroke prevention, rural hospital

## Introduction :

Atrial Fibrillation is the most common sustained arrhythmia in clinical practice, preferentially affecting elderly people.<sup>1</sup> Managing atrial fibrillation is challenging, especially in a rural hospital. Managing AF involves considering three primary treatment objectives: preventing thromboembolism, controlling ventricular rate and correcting the rhythm disturbance.<sup>1</sup> Despite of any limitation of facilities in rural hospital, effective and efficient management for the patient is a must.

### Case Presentation :

A 68-year-old women admitted to emergency room with headache and palpitation as her chief complain since 2 days. She also had several vomiting episodes and nausea sensation. She went to emergency room a day before, but there is no significant improvement. She has history of uncontrolled hypertension, non-insulin dependent diabetes mellitus and ischemic stroke attack 2 years ago with a good recovery. The first step is to establish that the patient is hemodynamically stable and whether she needs inpatient evaluation for an associated condition.

Her blood pressure measured at 150/124 mmHg, acceptable heart rate 83 beats per minute, 24 x/minute respiration rate and afebrile temperature at initial vital sign examination. An electrocardiogram revealed atrial fibrillation with a ventricular rate 133 beats per minute with LV strain in anterolateral lead (Figure 1). She is in a full consciousness and found cardiomegaly on her physical examination. A chest radiograph confirmed her heart enlargement (Figure 2).

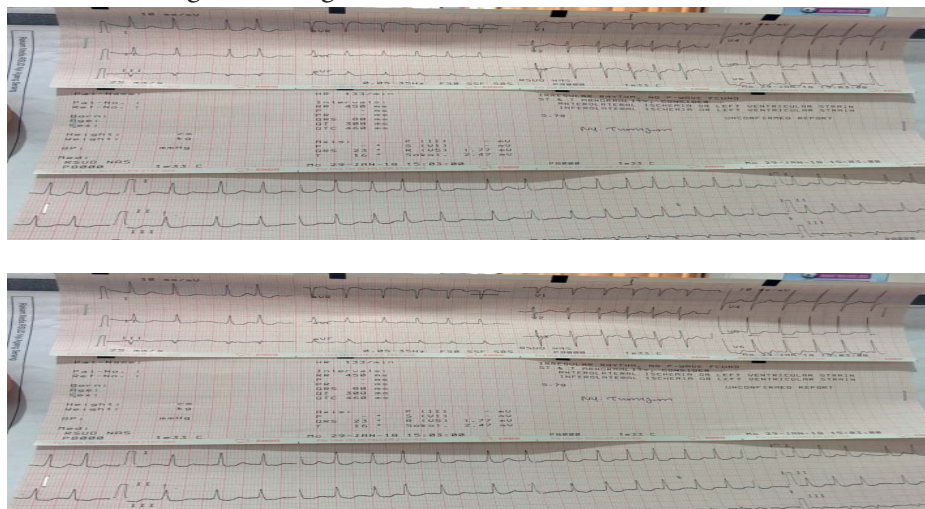


Figure 1. Resting ECG showing Atrial Fibrillation with Rapid Ventricular Response

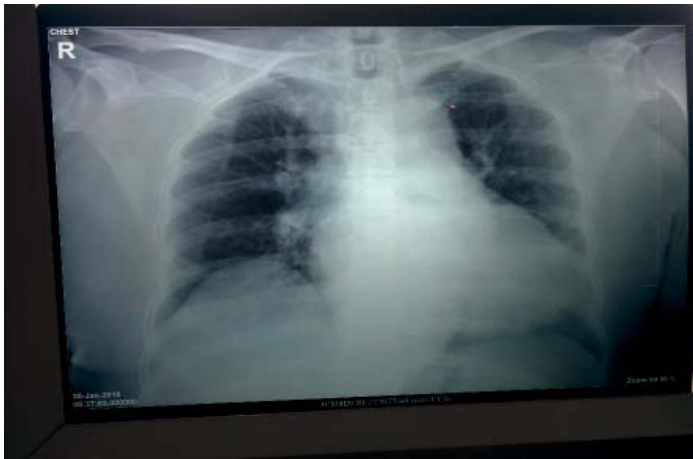


Figure 2. Cardiomegaly on chest x-ray

Amiodarone 100mg tablet are given to the patient after she got Ranitidine and Ondansetron shoot for her vomiting episodes prior to intravenous rehydration of 500cc Asering liquid. Post Amiodarone 100mg tablet administration, there is still no change on electrocardiogram. Atrial fibrillation with ventricular rate 140 beats per minutes is showed on electrocardiogram. As the patient consulted to internist (cardiologist yet available here), Digoxin 0.25mg tablet are given to the patient. An hour after digoxin tablet administration ECG result is converted to sinus rhythm with 77 beats per minute.

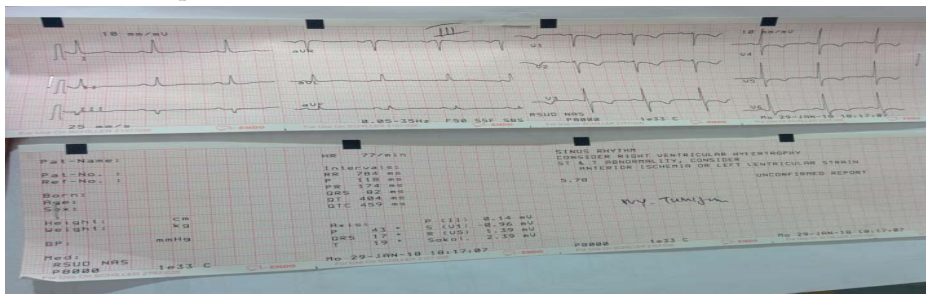


Figure 3. ECG showing sinus rhythm after Digoxin administration

The patient is observed at the ward with daily ECG evaluation. She also treated for her vomiting episodes, non-insulin dependent DM and dyslipidemia. Since there is no evolution of her daily ECG evaluation also she feels much better without any palpitation and headache complaints, the patient is discharged from the hospital with planned further follow up on the outpatient clinic.

**Discussion :**

Atrial fibrillation is one of the most common arrhythmias seen in emergency departments. It is most commonly attributable to medical disorders and usually occurs in the elderly population.<sup>3</sup> Atrial fibrillation is in most patients (approximately 70%) associated with chronic organic heart disease including valvular heart disease, coronary artery disease, hypertension, particularly if left ventricular hypertrophy is present, hypertrophic cardiomyopathy, dilated cardiomyopathy and congenital heart disease and most commonly in adults, atrial septal defect.<sup>4</sup> Atrial fibrillation may occur in the absence of detectable organic heart disease, the so-called "lone AF", in about 30% of cases.<sup>4</sup> Atrial fibrillation may be related to acute causes and may not recur should the cause disappear or be cured. The acute causes of AF include acute alcoholism ("holiday heart syndrome"), electrocution, acute heart disease such as, acute myocardial infarction, acute pericarditis, acute myocarditis, acute pulmonary embolus, hyperthyroidism and acute pulmonary disease.<sup>4</sup> Reversible causes of atrial fibrillation are conveniently separated into cardiac and non-cardiac causes.<sup>5</sup> Non-cardiac causes (electrolyte imbalance, thyrotoxicosis, fever from any cause [particularly pneumonia], pharmacological and recreational drug use, and alcohol use) were ruled out by history and physical and simple blood tests, unfortunately we can not do electrolyte and thyroid serum test due to limitation of the laboratory in the rural area. Since the history of some vomiting episodes, electrolyte imbalance is one of our hypothesis that can cause atrial fibrillation on this patient. The cardiac causes of atrial fibrillation include any mechanism resulting in structural and functional changes to the heart.<sup>5</sup> We need further examination (using echocardiogram or other modalities) to get an objective result whether she has structural and functional changes to the heart. Among the predisposing factors to atrial fibrillation, diabetes in women and left ventricular hypertrophy in both sexes should be emphasized<sup>4</sup>

Beside of identifying what are the causes of atrial fibrillation, stroke prevention is an important thing to do since major complication of atrial fibrillation is stroke.<sup>5</sup> The central pharmacological approach to stroke prevention in atrial fibrillation is anticoagulation.<sup>5</sup> Risk stratification algorithms have been developed, and one of a quantified risk stratification system that currently in use is CHADS<sub>2</sub> score.<sup>5</sup> (congestive heart failure, hypertension, age 75 years, and diabetes mellitus are each assigned 1 point; previous stroke or transient ischemic attack is assigned 2). In patients with a CHADS<sub>2</sub> score 2, long-term oral anticoagulation is recommended, unless contraindicated, with a goal international normalized ratio of

2 to 3. However, patients with CHADS2 score of 1 (moderate risk) still derive benefit from long-term oral anticoagulation over aspirin, often with lower rate of major bleeding.<sup>5</sup> In our case, the patient had a history of hypertension, diabetes mellitus, and history of previous ischemic stroke which gave him a CHADS2 score of 4. As the recommendation said, atrial fibrillation patients with CHADS2 score 2 or more are recommended to take long-term oral anticoagulation. Since atrial fibrillation in our case converted to sinus rhythm, oral anticoagulation are not given to the patient. Antiplatelet is our choice for preventing stroke in this patient. Valsartan 40mg once a day are given to control hypertension while Clopidogrel 75mg once a day is indicated for reduction of atherothrombotic event following her history of stroke.<sup>2</sup> Oral antidiabetic agents, Glimepiride 1mg once a day and Metformin 500mg twice a day are chosen to control her blood glucose. Dyslipidemia on this patient is treated with Simvastatin 10mg once a day and advised for lifestyle modification.

The goals of medical therapy for patients with atrial fibrillation are to maintain sinus rhythm, avoid the risk of complications (eg, stroke), and minimize symptoms.<sup>2</sup> In other reference, controlling ventricular rate is also important thing in managing atrial fibrillation.<sup>1</sup> At the first atrial fibrillation ECG's finding in this patient, we give Amiodarone 100mg tablet for initial treatment. ECG's finding still not changed, Digoxin 0.25mg tablet is preferred next to Amiodarone. Atrial fibrillation is converted to sinus rhythm with 77 beats per minute after administration of Digoxin 0.25mg tablet. Randomized trials comparing outcomes of rhythm- versus rate-control strategies have not demonstrated major differences in important clinical outcomes, including stroke and mortality, between the two strategies.<sup>1</sup> The patient are discharged from the hospital after 4 days hospitalization for daily ECG evaluation and condition improvement.

### **Conclusion :**

Determine what is cause of atrial fibrillation will lead us deciding treatment to the patient. Maintain sinus rhythm and controlling ventricular rate is important goals in managing atrial fibrillation. Since stroke is the leading cause of morbidity and mortality associated with atrial fibrillation, consideration of strategies of stroke prevention also important.

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