

# ATRIAL FIBRILLATION

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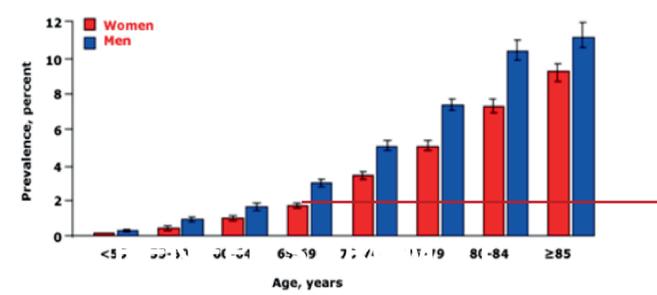
## ABSTRACT

Atrial Fibrillation (AFib) is a serious condition involving an irregular heartbeat that can lead to blood clots and stroke. The current incidence of AFib is 2.7 million in the US, by 2050, this could be 5.6 million in the US, and 33.5 million worldwide. AFib is caused by a disturbance in the electrical system of the heart (the S-A Node, the A-V node, and the Purkinje Fibers). The risk of AFib increases with age and is more common in males and in whites. Asians have the lowest incidence, North America has the highest. There are three types of AFib: Paroxysmal, Persistent, and Long-Standing Persistent. Hypertension, coronary heart disease, and VTE are predisposing factors for AFib. Diagnosis of AFib is by ECG, Holter monitor, Event monitor, and Echocardiogram. The symptoms of AFib are palpitations, weakness, and chest pain. AFib may result in a stroke. AFib is managed by medical and surgical means. In summary, AFib is a serious condition which may result in stroke and must be treated effectively.

## EPIDEMIOLOGY

- Global health problem with its overall incidence and prevalence increasing worldwide.
- The prevalence in the US ranges from 0.1% in adults of age less than 55 to 9% in those 80 years old.
- More frequent in whites than blacks over the age of 50.
- Highest prevalence in North America (700-775/100,000 population), lowest incidence in Asia (250-400/100,000 population).

Prevalence of atrial fibrillation with age



## DIAGNOSIS

- Mobile cardiac monitoring: Worn for up to 30 days. It records the heart beat
- Echocardiogram: Tells how the heart muscle is moving and pumping blood.
- Transthoracic echocardiogram (TTE): A non-invasive echocardiogram that gives a picture of the beating heart.
- Transesophageal echocardiogram (TEE): Get a good picture of the back of the heart. A probe is placed down the esophagus.
- Cardiac computerized tomography (CT) or magnetic resonance imaging (MRI): Get clear, detailed pictures of the heart.
- A Cardiac MRI: Uses radio waves, magnets, and a computer to create pictures of the heart.

## MEDICAL MANAGEMENT

- All patients require cardioversion if the CHA2DS2-VASc score is elevated
- THE CHA2DS2-VASc SCORE [Congestive heart failure, Hypertension, Age 65-74 years, Diabetes mellitus, VAScular disease (coronary artery disease, peripheral artery disease, aortic atherosclerosis)], and female gender.
- Rate control: Beta-blocker, or calcium channel-blocker, or digoxin alone, or in combination
- Rhythm control: Use antiarrhythmic drugs, percutaneous catheter ablation and/or surgical procedures.
- Anticoagulation: Generally beneficial to lower risk of thromboembolism

## INTRODUCTION

- A condition involving an irregular heartbeat that can lead to blood clots, stroke, heart failure.
- In 1996, there were 2.7 million adults in the US with AFib, the number is expected to rise to 5.6 million in the U.S. and 33.5 million people worldwide, by 2050.
- AFib often causes serious thrombotic disorders.

## TYPES OF AFIB

- Paroxysmal AFib: Occurs sometimes, returns to normal sinus rhythm and then stops.
- Persistent AFib: AFib does not stop by itself. Medications or a special type of electrical shock (called cardioversion) are needed to help the heart return to normal rhythm.
- Long standing persistent AFib (aka Permanent AFib): Cannot be corrected with medications and controlled electrical shock.

## SYMPTOMS

- Palpitations- sensations of racing heartbeat
- Weakness, fatigue
- Reduced ability to exercise
- Lightheadedness
- Chest pain

## SURGICAL MANAGEMENT

- Catheter-based Radio Frequency Ablation (RFA) of the AV node and/or Bundle of His.
- Maze procedure. An ablation technique during open-heart surgery. A scar tissue is created in the upper chambers of the heart, using a scalpel.
- AV node ablation. A catheter is used to create scarring of the AV node.

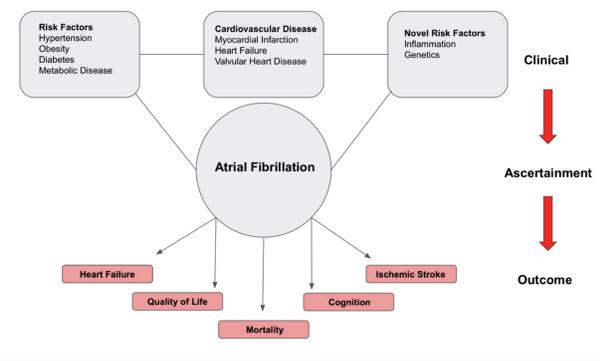
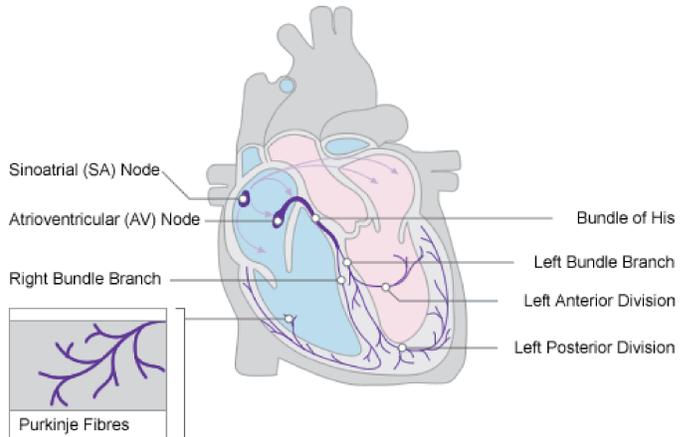
## COMPLICATIONS

- Usually not life-threatening unless left untreated.
- Makes it harder for the heart to pump blood, blood moves around slowly, and may form clots.
- A blood clot may leave the heart, move to the brain and cause a stroke.
- Can cause a fast pulse rate due to ventricle beating fast, leading to cardiomyopathy.

## SUMMARY AND CONCLUSIONS

- AFib is a serious condition which may result in stroke and must be treated effectively. The incidence of AFib is on a rise, with an expected number of 5.6 million in the U.S. and 33.5 million people worldwide, by 2050.

## CONDUCTION SYSTEM OF THE HEART



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