

# Atrial fibrillation



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History, Clinical Signs and Symptoms of Atrial Fibrillation. Atrial fibrillation (AF) is a medical term that refers to an abnormal rhythmic movement of the heart. The term atrial fibrillation as the name suggests refers to the quivering or fibrillation of the muscles in the upper two chambers or atria of the heart. The human heart pumps blood to the body at a regular rhythm of 60 beats in one minute. This rhythmic beat of the heart occurs owing to the passage of electrical currents through the heart causing the heart muscles to contract. When these electrical currents passing through the heart become disorganized and rapid they cause the heart muscles to beat faster leading to atrial fibrillation. AF may occur in men or women and is generally seen in the elderly population in the age group of 60 -70 years or above. As Kowey and Naccarelli points out “ from an epidemiological standpoint AF is predominantly a disease of elderly individuals with cardiovascular diseases” (Kowey and Naccarelli, p. 1). AF generally is not seen in the young population.

The human heart consists of four chambers – the upper two chambers are known as atria while the two lower ones are known as ventricles. De-oxygenated blood containing high amounts of carbon dioxide enters the right atrium via the superior vena cava and inferior vena cava and flows into the right ventricle. The right atrium contracts to pump the rest of the blood into the right ventricle which in turn contracts to pump the blood into the lungs where the blood loses its carbon dioxide and gets fresh oxygen supply. This oxygenated blood then enters the left atrium which contracts to pump the blood into left ventricle. The left ventricle contracts to send the blood to the rest of the body. These contractions of the heart muscles occur due to an inbuilt electric supply system present in the human heart that sends out

electrical signals during each heart beat. Each electrical signal starts its journey from the sino-atrial (SA) node present in the right atrium of the heart. From here as it moves down it causes both the atria to contract thus pumping blood to the ventricles. The electrical signal then moves down to the atrio-ventricular node and via the bundle of His enter both the ventricles causing them to contract and pump blood to the lungs and the rest of the body. In atrial fibrillation this electrical signal arises from the nearby pulmonary veins and other parts of the right atrium instead of the SA node. These electrical signals produced are extremely irregular and generally very rapid and can range up to 350 signals per minute. This causes the atrium to quiver instead of beat and reduces the efficiency of the atria to pump blood. Due to rapid beating of the atria, ventricles also start to beat rapidly ranging from a beat rate of 100 to 175 per minute (normal rate being 60 – 100 beats in one minute). Thus the body and lungs receive irregular and varying supply of blood from the heart instead of a constant and regular blood flow. This inadequate and irregular supply of blood may lead conditions that can cause heart attack and stroke. Elderly people who have a history of blood pressure, heart diseases, asthma, pericarditis are in the risk of getting this disease. There are causes not directly related to the heart that can cause AF. As Waktare and Camm tell us “ several non cardiac factors may cause... AF. These include thyrotoxicosis, electrolyte disturbances... and excessive alcohol consumption. Acute and chronic pulmonary...disease such as pneumonia, acute pulmonary embolism, and chronic obstructive airways disease may present with AF (Waktare and Camm, p. 6).

Symptoms of this disease may or may not show and the patient may be quite unaware of this irregular beating of the heart. However there are

certain symptoms that are generally observed in AF patients and these are as listed by Arcangelo and Peterson “ palpitations, chest discomfort, and shortness of breath, weakness, hypotension, dizziness and syncope. Clinical signs of atrial fibrillation include pulmonary edema, dyspnea, and possibly hemodynamic instability” ( Arcangelo and Peterson, p. 770).

AF can be diagnosed by EKG, echocardiography, transesophageal cardiographs, patient activated event recorder and Holter monitor. Study of a patients medical history to check for previous heart diseases and also checking for a history of excessive alcohol intake (if any) along with tests for blood pressure, chest x-rays, treadmill tests and blood tests may also reveal the presence of AF. Treatment includes administering medicines that slow the heart beat rate, reversing the causing factors of AF and also medications that do not allow the disease to recur are also given. Sometimes mild electric shocks or medicines are given to regularize the abnormal heart beat rate. Often surgical procedures involving pacemakers and defibrillators are also followed to arrest the occurrence of AF in a patient.

#### Works cited

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