

Atrioventricular Block

A normal heartbeat starts with an electrical impulse originating within sinoatrial (SA) node which is located in the right atrium (upper chamber of the heart). This impulse causes contraction of both atria which pushes blood to the ventricles (larger lower chambers of the heart). The electrical impulse then reaches the atrioventricular (AV) node signaling both ventricles to contract pushing blood to the lungs and out to the body. AV block occurs when the electrical impulse from the SA node is delayed or blocked at the AV node.

There are varying degrees of AV block:

First-degree AV Block occurs when the electrical impulse is slowed as it travels through the AV node. Most cases of first-degree AV block are found incidentally and do not require treatment.

Second-degree AV Block occurs when some of the electrical impulses are blocked. There are two types of second-degree AV block:

Mobitz Type I occurs when the electrical impulses are progressively delayed more and more with each heartbeat until an impulse is blocked.

Mobitz Type II occurs when the electrical impulse is not delayed, but blocked more frequently. Type II is less common but is more serious and can be associated with clinical signs such as lethargy or collapse.

Third-degree AV block, or complete heart block, occurs when all electrical impulses to the AV node are blocked resulting in an abnormally slow heart rate. The low heart rate causes decreased blood flow to the brain, lungs and body. This is a life-threatening condition that requires immediate medical attention. Most cases of high grade second degree AV block and third degree AV block require pacemaker implantation.

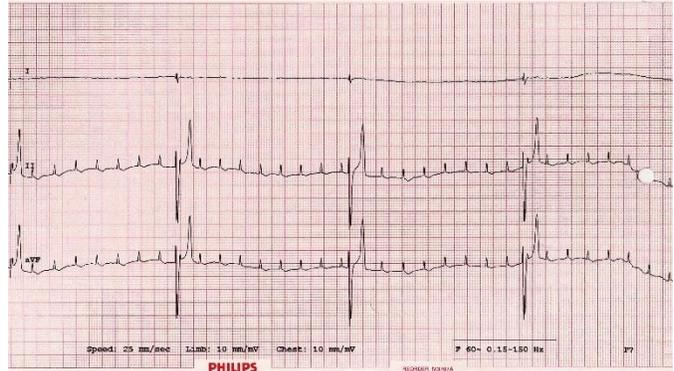
Symptoms

- Weakness
- Lethargy

- Fainting
- Collapse
- Congestive Heart Failure

AV block can have several different causes:

- Degeneration of the Conduction System (most common in dogs)
- Heart Disease (most common in cats)
- Fibrosis of the Heart Muscle
- Infection
- Cancer
- Metabolic Disease
- Lyme Disease
- Electrolyte Imbalances
- Injury or Trauma
- Drug side effect



Treatment

Second-degree AV block can sometimes be controlled with medication. The only treatment for high grade second-degree AV block and third-degree AV Block is Pacemaker Implantation. The Pacemaker has a long lead that is inserted into the jugular vein and passed into the right ventricle. The lead is then connected to a small battery that creates electrical impulses which stimulate the heart to contract. The cardiologist will then program the pacemaker to bring the heart rate back to a normal.