“Heart Block” – Atrioventricular block

First-degree Heart Block:

- The PR interval is prolonged: more than 200msec (1 large square)
- This means conduction through the AV node is slowed.
- Atropine may resolve this: blocking the vagal input into the AV node will likely speed conduction through it.
- It is frequently due to drugs, like calcium channel blockers and cholinergic drugs.

Second-degree Heart Block ... Mobitz Type 1 (Wenckebach)

- The PR interval is prolonged progressively over several beats, until the beat is missed.
- I.e. A P wave occurs which is not followed by a QRS
- This means conduction through the AV node is slowed.
- Atropine may help

Second-degree Heart Block ... Mobitz Type 2

- The PR interval is NOT prolonged progressively; A beat is missed every few beats with a normal PR interval.
- This means conduction through the Bundle of His or the Purkinje fibers is slowed.
- It is typically a prelude to either Third Degree Heart Block, or asystole.
- Atropine probably won't do anything.
- It requires a pacemaker.

Third-degree Heart Block ... complete heart block

- There is no relationship between the Pwaves and the QRS complexes.
- This is called "AV dissociation". The AV node is not conducting anything.
- Atropine will not accomplish anything here.
- It requires a dual-chamber pacemaker.

Causes of atrioventricular block:

- Increased vagal tone, e.g. in athletes, or during sleep;
- Idiopathic progressive conduction system disease: 50% of cases. One example is Lenegres disease
- Ischaemic heart disease: 40% of cases
- Cardiac surgery
- Inherited familial AV block

Drugs

- Verapamil
- Digoxin
- Amiodarone
- Adenosine
- Beta-blockers
- Quinidine
- Procainamide

Factoids:

The PR interval is not just the conduction through the atria - it is also the AV node, the bundle of His and the Purkinje fibers.

But, most of the time when this is prolonged, it's the AV node (in most cases with a PR of 200-300 msec)

First degree and Mobitz type 1 are usually AV nodal processes

Mobitz type 2 and Third degree are typically due to disease below the AV node.

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