

Diagnostic and Prognostic Implications of Surface Recordings from Patients with Atrioventricular Block



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KEYWORDS

• Atrioventricular block • Wenckebach block • Mobitz block • Complete AV block

KEY POINTS

- Classic type 1 (Wenckebach) atrioventricular (AV) block is owing to depressed AV nodal conduction and is recognized by a prolonging PR interval ending in a “dropped beat.”
- Type II (Mobitz) AV block is owing to abnormal *infranodal* conduction, and is usually accompanied by bundle branch block.
- Second-degree AV block with 2:1 conduction can be a difficult problem.
- Third-degree (complete) AV block is a diagnosis too often rendered and too often incorrect.

ATRIOVENTRICULAR BLOCK

The atrioventricular (AV) bridge is vulnerable to many circumstances that depress conduction. Abnormal impulse transmission may be caused by drugs, autonomic effects, or destructive processes. The familiar separation into 3 degrees is useful, but occasionally insufficient.

First-Degree Atrioventricular Block

First-degree AV block is actually an incorrect term, because there is merely *delay* and not block of any sinus impulse (Fig. 1).

Second-Degree Atrioventricular Block

Classic type 1 (Wenckebach) AV block is owing to depressed AV nodal conduction and is recognized by a prolonging PR interval ending in a dropped beat. It is frequently owing to drugs that depress conduction through the AV node (digitalis, β -blockers, and calcium channel blockers.) It is

frequently seen with inferior wall myocardial infarction (Fig. 2).

Fig. 3 illustrates the effect on AV conduction as successive atrial impulses (1–5) arrive in the AV junction earlier and earlier in its refractory period. The light stippling is the relative refractory period and the dark stippling is absolute refractory period.

Fig. 4 depicts the basis of type 1 AV block. The earlier the P wave is, in the wake of the preceding complex, the longer the PR interval will be. Ultimately, the P wave encounters the absolute refractory period and cannot be conducted.

Type II (Mobitz) AV block is owing to abnormal *infranodal* conduction, and is usually accompanied by bundle branch block. All conducted impulses share the same PR intervals (usually normal). The dropped beats appear without warning and may be sporadic or several in a row. Type II block may be seen with anterior infarction, but is not related to drugs in current use. A pacemaker is usually required (Fig. 5).

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Card Electrophysiol Clin 8 (2016) 25–35
<http://dx.doi.org/10.1016/j.ccep.2015.10.031>

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Fig. 1. First-degree atrioventricular block. The PR interval exceeds 0.20 seconds.

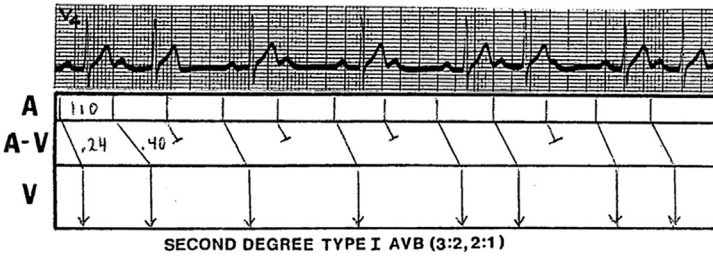


Fig. 2. A typical example of Wenckebach block is shown. AVB, atrioventricular block.

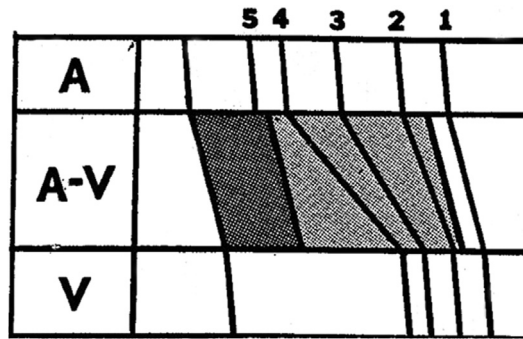


Fig. 3. The effect on atrioventricular (AV) conduction as successive atrial impulses (1-5) arrive in the AV junction earlier and earlier in its refractory period.

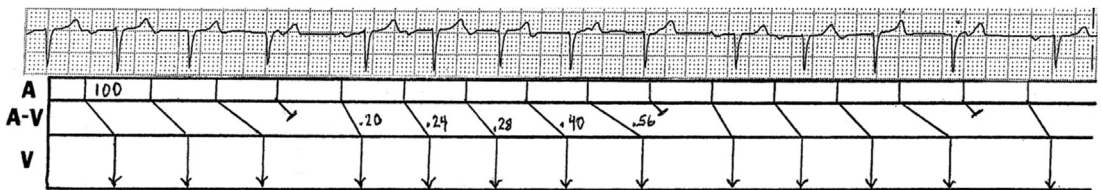


Fig. 4. The basis of type 1 atrioventricular (AV) block.

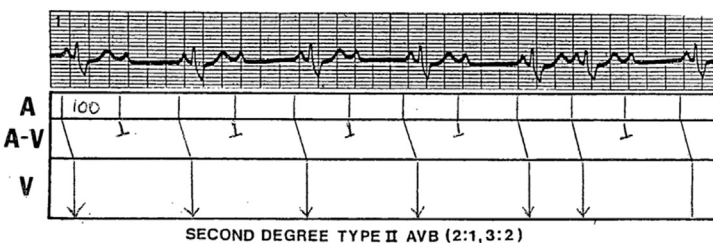


Fig. 5. Second-degree type II atrioventricular block (AVB; 2:1, 3:2).

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