

Answer to the Rhythm Puzzle

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The ECG (electrocardiography) shows a sinus bradycardia of 42 beats/min, a horizontal electrical heart axis and a narrow QRS complex. The second to fourth QRS complex is preceded by a P wave with a variation in the PQ time. The PQ time in the second QRS complex is 220 ms, in the third 200 ms and the fourth 140 ms. No P wave precedes the fifth QRS complex. In the sixth QRS complex, the P wave is incorporated in the S wave of the QRS complex. This pattern is suggestive for isorhythmic dissociation.

The junctional rhythm (such as the fifth and sixth complex in this ECG) is temporarily faster than the sinus rhythm resulting in a pseudo-shortening of the PQ time. Since both the junctional and the sinus rate are nearly identical, there seems to be dissociation. However, during prolonged registration of the ECG 1:1 AV conduction, during a slightly faster sinus rhythm is present. This rhythm should not be confused with complete AV block when there is no relation between atrial and ventricular activation.

Levy et al. have shown that a baroreceptor-initiated feedback mechanism is operative in isorhythmic dissociation. Elevated systolic pressure is the trigger of baroreceptor discharge, which produces sinoatrial slowing [1].

In our patient with symptomatic bradycardia and isorhythmic dissociation, we implanted a DDD pacemaker. After implantation, he had no further complaints of dizziness.

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Reference

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