A 36 year-old female came to hospital with 2 episodes of near syncope in the previous 2 months. She also had dyspnea on exertion. Her 12-lead ECG was shown in Figure 1.

What was abnormality shown in her ECG?

Answer

The ECG showed normal sinus rhythm (positive P in I, II, III, aVF and VI) with atrial rate of 66 bpm and complete heart-block. There was no relationship between atrial and ventricular electrical activity with atrial rate (75 bpm) was more than ventricular rate (44 bpm). QRS complexes were narrow with QRS width of 80 ms (less than 120 ms) and rate of 40 - 60 bpm. These findings suggested that the site of block was AV nodal block with junctional escape beats (1,2).

What is the most likely cause of her complete heart block?

Answer

When we find the patients with complete heart block, we should look for the causes of complete heart block, some of which are reversible.

Table 1 showed causes of complete heart block.
In this patient, we checked serum electrolytes including calcium, thyroid function test, cardiac markers (CK-MB, Troponin T), anti-nuclear antigen. All of them were normal. Echocardiography showed normal heart size, good right ventricular and left ventricular contraction without regional wall motion abnormality and normal valvular function. She still had complete heart block in the period of 6 days of hospital admission. We suspected that the most likely cause of her complete heart block was congenital heart block.

**What is the appropriate management?**

**Answer**

Because she had symptoms from low cardiac output of bradycardia, so she had indication class I for permanent pacemaker implantation based on the Guidelines for Device – based Therapy of Cardiac Rhythm Abnormalities by American College of Cardiology (ACC) / American Heart Association (AHA) and Heart Rhythm Society (HRS) 2008 (4). She had been implanted DDD pacemaker.

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**Reference**