

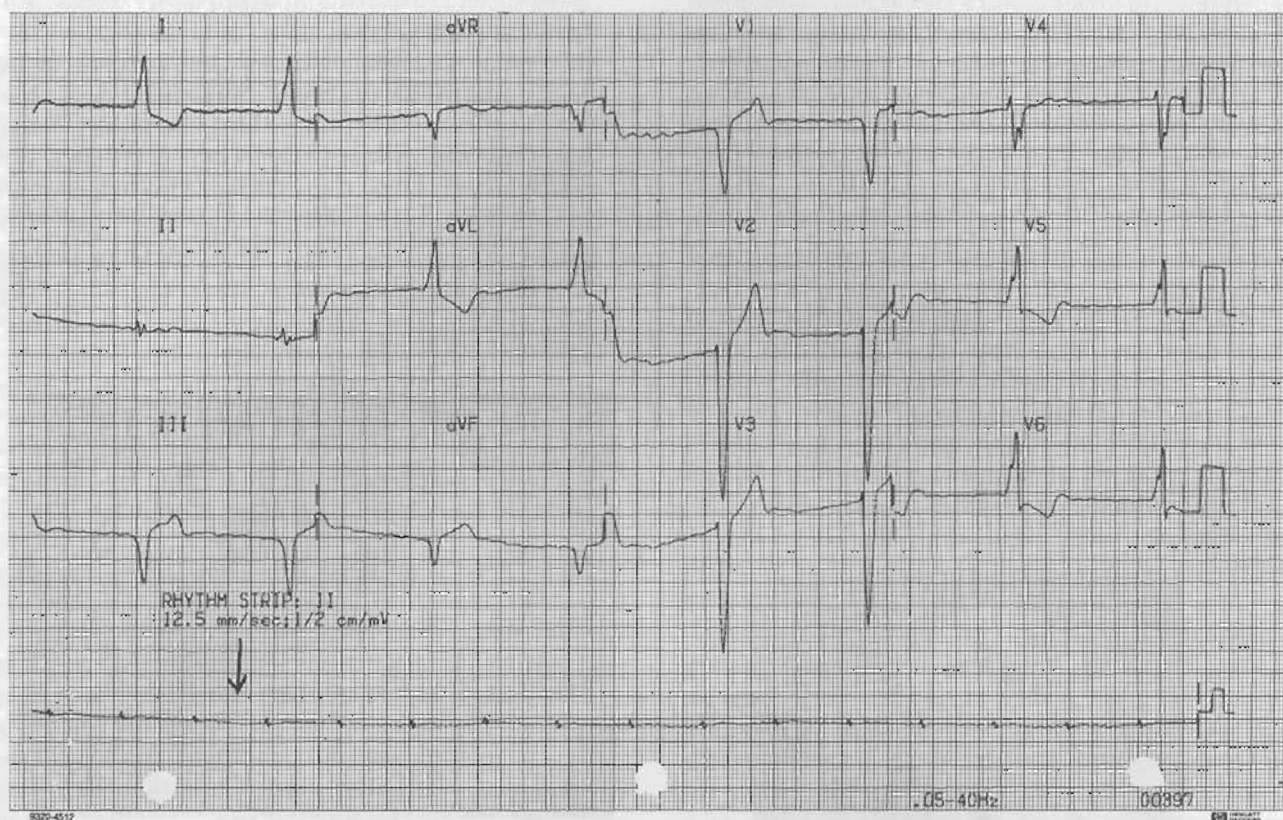
CARDIOLOGY QUIZ

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VENTRATE = 45/min.

QRS = 0.15

AT. = FIBRILLATION

YOUR DIAGNOSIS?

This is an electrocardiogram on a patient, age sixty, coming to the Emergency Room with lightheadedness and dyspnea on walking briskly. What is the interpretation of this electrocardiogram and how would you manage this patient?

On this electrocardiogram, P-waves are replaced by fibrillatory waves and QRS is widened to 0.15 seconds and the morphology of the QRS is consistent with left bundle branch block. The ventricular rate is 45 per minute and regular in spacing.

The above findings in the presence of atrial fibrillation are suggestive of complete heart block with junctional escape rhythm and complete left bundle branch block.

Usually in the presence of atrial fibrillation, ventricular response is grossly irregular. The first thing which you have to rule out in this patient is

digitoxicity.

In the presence of atrial fibrillation, you can keep on giving digitalis until the ventricular rate is around 60, as long as the ventricular response is irregular.

Once regularization of ventricular response occurs, in the presence of atrial fibrillation, one must consider two possibilities: First, the patient has converted to normal sinus rhythm; secondly, the patient is still in atrial fibrillation but has developed complete heart block with junctional escape rhythm. Hence, in the follow-up of a patient with atrial fibrillation, whenever regularization of the ventricular response occurs, the cardiogram must be done. The other possibility is that the patient has developed AV nodal block with junctional escape rhythm which is a sign of digitoxicity.

In such cases, one should obtain serum digitalis

level, stop digitalis and monitor the rhythm in the patient. Some cardiologists might put in a temporary pacemaker to be replaced by a permanent one if the heart block does not clear; or if there is associated myocardial infarction as shown by enzymes (serial enzymes) and technetium TC Pyrophosphate scan, as it is difficult to diagnose myocardial infarction in the presence of complete left bundle branch block with few exceptions.

If the serum digitalis level comes back (serum digoxin level) as therapeutic or patient does not improve in a few days or if the patient was not on digoxin at all, then one must think of the second possibility, i.e. sick sinus syndrome (SSS). This is a disease of the conduction system with symptoms associated with tachycardia and bradycardia. In this patient,

there is atrial fibrillation, complete heart block, complete left bundle branch block, junctional escape rhythm, suggestive of diffuse conduction system disease in which case a temporary pacemaker followed by ventricular activated and ventricular inhibited rate programmable, permanent pacemaker should be implanted. In this patient, dyspnea and lightheadedness is due to low output and pulmonary congestion due to bradycardia and increased venous return due to the exertion of walking.

In conclusion and in summary, if in the presence of atrial fibrillation ventricular response becomes slow and regular, always think of digitoxicity; and if the patient is not on dig. or if his level is therapeutic, think of sick sinus syndrome. These patients need a permanent pacemaker.