ELECTROCARDIOGRAPHIC QUIZ

**Lt Col MK GARG ^{*}, Lt Col JS DUGAL ⁺,
Col AP SINGH [#]**

A 52-year-old male patient was admitted with left sided hemiplegia caused by ischemic cerebral infarct along with hypertension. He was placed on tab Atenolol and tab Disprin. On third day bradycardia was detected on clinical examination. He was hemodynamically stable and cardiovascular system examination did not reveal any abnormality. His electrocardiogram (ECG) was recorded (Figure-1).

Answer to quiz on pg. 347

Fig. 1

^{*} Classified Specialist (Medicine) & Endocrinologist, ⁺ Classified Specialist (Medicine) & Cardiologist, [#] Senior Adviser (Medicine & Neurology), Department of Medicine, Command Hospital (SC), Pune 411 040.

**ECG DIAGNOSIS :
VENTRICULAR TACHYCARDIA**

ECG revealed polymorphic ventricular complexes with rate of 150 beats/min with fixed pattern irregularity. Basically there were two types of QRS complexes: one with right bundle branch block (RBBB) pattern (positive QRS in V1 and negative in V6 with QRS duration of 0.12 sec and T wave in opposite direction) probably originating in left ventricle; and another left bundle branch block (LBBB) pattern (positive QRS in V6 and negative in V1 with QRS duration of 0.12 sec and T wave in opposite direction) probably originating in right ventricle. Both pattern had fixed relationship of 0.4 sec and 0.5 sec between LBBB-RBBB pattern and vice versa with slight irregularity giving rise to fixed pattern irregularity probably related to one focus activating other- macroreentry (Echo beat). ECG also revealed occasional P-wave (V5), capture beat in V6 and fusion beat in V1, V5 suggesting AV dissociation.

Ventricular tachycardia (VT) in ECG is suggested by abnormal and wide QRS complexes (>0.14 sec) with secondary ST and T wave changes, ventricular rate >120 beat/min, AV dissociation with or without fusion or capture beat, superior QRS axis in the pres-

ence of RBBB and concordance QRS pattern in precordial leads [1,2]. However many patients have QRS duration of 0.12 sec [12]. Our ECG is consistent with diagnosis of VT. Our ECG also gives impression of bi-directional VT, which is due to QRS with RBBB pattern with alternating superior and inferior axis [1]. It is not really a bi-directional VT because rhythm in bi-directional VT is usually quite regular and it is frequently caused by digitalis toxicity, however in our ECG, rhythm is showing fixed irregularity and patient was not on digitalis.

In most patients, sustained VT is caused by microreentry. The reentrant circuit involves a relatively small area of ventricular myocardium. Sustained VT occasionally involves macroreentrant circuit utilising the bundle branch [3].

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