

### Change in electrocardiography after cardiopulmoner resuscitation

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Right answer: B

Left anterior fascicular block with atrial fibrillation is seen in first ECG. However in second ECG bifascicular block due to newly developed right bundle branch block (RBBB) is seen.

The bundle of his divides at the junction of the fibrous and muscular boundaries of the interventricular septum into the left and right bundle branches. The right bundle branch is vulnerable to stretch and trauma for two-thirds of its course when it is near the subendocardial surface. RBBB block indicate affection of the right side of the heart through cor pulmonale, myocardial ischaemia/infarction, pulmonary embolism, myocarditis or congenital heart disease. Other less common causes of RBBB are idiopathic progressive cardiac conduction diseases, cardiac trauma, hypertension and cardiomyopathies. RBBB can also result from right heart catheterization. Patients with pre-existing left bundle branch block who require right heart catheter placement are at risk for complete heart block if RBBB develops. Although the risk is low and complete heart block is usually transient, catheter insertion should not be undertaken in patients with LBBB without the ability to institute immediate cardiac pacing. Prevalence of RBBB in asymptomatic individuals is also high and some recent studies show that it increases risk of cardiovascular events in the future (1).

Pulmonary embolism, which is on the choice A, cannot be true answer in this patient. Because we expect respiratory alka-

losis with hypoxia and hypocarbia in arterial blood gaze. However this patient is under acidotic condition. Also in arrest patients due to pulmonary embolism there should be troponin elevation because of right ventricular strain. Ischemic changes and acute right ventricular failure, which are on the choice C and D, are complementary conditions and we hope to see elevated cardiac enzymes. This patient has subfebrile fever, leukocytosis and history of COPD. Therefore the most possible cause of his condition is COPD exacerbation and respiratory failure.

There are only few case reports about new RBBB after blunt chest trauma (2, 3). However trifascicular block more commonly seen after traumas. Pulmonary diseases and secondarily cor pulmonale cause right ventricular stretch and dilatation. These make right bundle branch more vulnerable to ischemia and trauma. Forceful external chest compression, which is on choice B, may damage to right bundle branch in such a patient. Because of the incidence is high, knowing the etiologies and diagnosis of RBBB is important.

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### References

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