【 EDITORIAL 】

Drug-induced Brugada-type Electrocardiogram: A Cause of Sudden Death in Patients with Schizophrenia?

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Schizophrenia is a mental disorder associated with a potential risk of sudden death. Furthermore, we have to take account of antipsychotic drugs as a major cause of sudden death in these patients (1). Some antipsychotic drugs (*e.g.*, tricyclic antidepressants and thioridazine) have been reported to cause QT prolongation and/or torsade de pointes, which are induced by blocking of the rapidly activated delayed rectifier potassium channel, I_{Kr} (2-4). Physicians need to be aware of the QT interval before treating patients with these drugs because patients with excessive QT prolongation may have mild phenotypes, even without culprit drugs (5).

Carbamazepine, an antiepileptic drug, has been also reported as a cause of sudden death; possibly because it blocks both the neuronal and the myocardial voltage-gated sodium channels (6, 7). The blocking of the cardiac sodium channel potentially causes not only conduction diseases (8, 9), but also "Brugada-type electrocardiography (ECG)" (10) which is characterized as a unique finding in Brugada syndrome. This syndrome is an inherited arrhythmogenic syndrome that is characterized as an ST-segment elevation in the right precordial leads and a cause of nocturnal sudden death (11). Genetic studies sometimes reveal a SCN5A mutation in patients with Brugada syndrome or patients with drug-induced Brugada ECG (12). Sodium channel blockers can lead to Brugada-type ECG, even in subjects with a normal ECG at baseline (13), and carbamazepine may also have the potential to provoke Brugada-type ECG. Ota et al. (14) showed an interesting case in which the levels of the Brugada-type ST-segment corresponded to a concentration of carbamazepine that was within the normal range and in which the ECG findings improved after the withdrawal of carbamazepine.

In order to prevent sudden death in patients with schizophrenia who are undergoing drug treatment, it may be necessary to carefully manage both QT prolongation and Brugada-like ST-segment elevation. Nevertheless it remains unknown whether drug-induced Brugada-type ECG is associated with a risk of sudden cardiac death. According to a consensus report (15), implantable cardioverter defibrillator therapy is not recommended in asymptomatic Brugada patients with drug-induced type I ECG. The most important issue is to investigate whether drug-induced Brugada-type ECG is correlated with sudden death in schizophrenia patients who are undergoing medical therapy (16, 17).

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