

Sudden Death of a Schizophrenic Patient with Spinal Cord Injury under Combination Antipsychotics

Hung-Cheng Tien¹, Ching-Ming Cheng², Kuan-Ying Lee², Kun-Chia Chang²

Acta Neurol Taiwan 2015;24:131-132

A 50-year-old man was diagnosed with schizophrenia at 18 years old. At 23 years old, he attempted suicide by jumping from the fifth floor because of auditory hallucinations. The incident resulted in paraplegia with Frankel grade D because of spinal cord injury (SCI) of the thoraco-lumbar area. In March 2011, he was admitted to the hospital for vivid psychotic disturbance, during which the treatment was changed to clozapine. Subsequently, he complained of chest tightness with heart palpitations. A review of his history revealed that he was a non-smoker and did not have common risk factors for coronary artery disease (CAD), such as hypertension, diabetes mellitus, and hyperlipidemia. Moreover, his family was negative for CAD and stroke. Further electrocardiogram examination showed that he was suffering from sinus tachycardia. We performed cross-titration from clozapine to olanzapine. The man was found dead after administration of clozapine and olanzapine at 50 and 15 mg/d, respectively, on the fifth day. Other medication included Haloperidol 20 mg/d and Trihexyphenidyl 6 mg/d. The death certification specialists speculated that this case died of ventricular arrhythmia.

Previous studies suggest that cardiovascular disease (CVD) is the leading cause of mortality in chronic SCI.¹ Chronic SCI is characterized by a disruption of the normal autonomic cardiovascular control, which further

contributes to cardiovascular risk.² The autonomic dysfunction occurs in SCI because of cardiovascular and physiological changes, including the loss of vasomotor control, which leads to autonomic dysreflexia. Other risk factors are due to the loss of supraspinal control, and reduced heart rate variability and cardiac contractility.³

The pathogenesis of CVD in SCI may share a similar pathway with CVD induced by multi-acting, receptor-targeted antipsychotics (MARTAs), such as clozapine and olanzapine. These drugs have potent anticholinergic effects on the cardiovascular system.⁴ The cardiovascular risk should be considered when using MARTAs to treat schizophrenic patients with SCI.

REFERENCES

1. Garshick E, Kelley A, Cohen SA, Garrison A, Tun CG, Gagnon D, Brown R. A prospective assessment of mortality in chronic spinal cord injury. *Spinal Cord* 2005;43:408–416.
2. Lee MY, Myers J, Hayes A, Madan S, Froelicher VF, Perkash I, Kiratli BJ. C-reactive protein, metabolic syndrome, and insulin resistance in individuals with spinal cord injury. *J Spinal Cord Med* 2005; 28:20–25.
3. Bauman WA, Kahn NN, Grimm DR, Spungen AM.

From the ¹Department of Psychiatry, Pingtung Hospital, Ministry of Health and Welfare, Pingtung, Taiwan; ²Department of General Psychiatry, Jianan Psychiatric Center, Ministry of Health and Welfare, Tainan, Taiwan.

Received February 26, 2015. Revised November 20, 2015
Accepted December 1, 2015.

Correspondence to: Dr. Kun-Chia Chang. Attending Psychiatrist of Department of General Psychiatry, Jianan Psychiatric Center No.80, Lane 870, Jhongshan Rd., Rende Township, Tainan County, Taiwan, R. O. C.

E-mail: psych123@mail.cnpc.gov.tw; kunchiachang0517@gmail.com

- Risk factors for atherogenesis and cardiovascular autonomic function in persons with spinal cord injury. *Spinal Cord* 1999; 3: 601–616.
4. Yang FD, Wang XQ, Liu XP, Zhao KX, Fu WH, Hao XR, Zhang XL, Huang GS, Qu SC, Bai JS, Huang XF, Kosten TR, Zhang XY. Sex difference in QTc prolongation in chronic institutionalized patients with schizophrenia on long-term treatment with typical and atypical antipsychotics. *Psychopharmacology* 2011;216: 9-16.