Atrial Fibrillation and Continuous Hypotension Induced by Sildenafil in an Intermittent WPW Syndrome Patient

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SUMMARY

A 55-year-old Japanese man was hospitalized for palpitations and severe chest oppression one hour after he ingested about 1500 ml of beer and sildenafil (Viagra®) 50 mg. At 43 years of age, he had been diagnosed with intermittent WPW syndrome following a paroxysmal supraventricular tachycardia (PSVT) attack. He took a 1 mg tablet of doxazosin daily for mild hypertension. On admission, his blood pressure was 90/54 mmHg and his heart beat was weak and irregular with a rate of about 220/min. Since atrial fibrillation (Af) was diagnosed on an electrocardiogram (minimum RR interval; 0.22 seconds), direct current shock was performed with 100 joules and 150 joules but conversion to sinus rhythm failed. Sinus rhythm returned spontaneously from Af four hours after taking sildenafil. Since blood pressure was 50/17 mmHg despite the return to sinus rhythm, blood pressure was maintained by dopamine for twelve hours after sinus rhythm returned. The patient underwent catheter ablation for curative therapy and thereafter has not had any further episodes of tachycardia. (Jpn Heart J 1999; 40: 827–830)

Key words: Sildenafil, WPW syndrome, Atrial fibrillation, Hypotension, Direct current shock

SILDENAFIL (Viagra®) acts as a selective inhibitor of cyclic GMP-specific phosphodiesterase type 5, resulting in smooth muscle relaxation, vasodilatation, and enhanced penile erection. The American College of Cardiology and the American Heart Association recently presented a consensus document to cardiologists indicating that sildenafil may cause severe myocardial ischemic events as an adverse effect. However, there are few reports of arrhythmia as an adverse effect. We report a WPW syndrome patient who developed atrial fibrillation and continuous hypotension after taking sildenafil, independently of organic nitrate.

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Received for publication July 14, 1999.
Revised and accepted Sept 13, 1999.
CASE REPORT

A 55-year-old man was admitted to our hospital complaining of palpitations and severe chest oppression one hour after he consumed about 1500 ml of beer and sildenafil 50 mg before sexual intercourse. He had occasionally experienced palpitation since 30 years of age and was diagnosed with intermittent WPW syndrome at 43 years old following a paroxysmal supraventricular tachycardia (PSVT) attack. Although PSVT was often detected on electrocardiogram, atrial fibrillation (Af) had not been detected. He had not been diagnosed with any diseases except for WPW syndrome and mild hypertension. He took a 1 mg tablet of doxazosin daily and sometimes took a 50 mg tablet of cibenzoline.

On admission, blood pressure was 90/54 mmHg and heart beat was weak and irregular with a rate of about 220/min. Consciousness was clear but severe cold sweat was recognized. Since wide QRS tachycardia was diagnosed as Af of WPW syndrome on an electrocardiogram (minimum RR interval; 0.22 seconds, Figure 1), direct current (DC) shock was performed with 100 joules and 150 joules but conversion to sinus rhythm failed. Sinus rhythm returned spontaneously from Af four hours after taking sildenafil 50 mg. Since his blood pressure was 50/17 mmHg despite the return to sinus rhythm, blood pressure was maintained by dopamine for twelve hours after returning to sinus rhythm. Asynergy was not recognized on echocardiogram. Figure 2 shows an electrocardiogram on which an apparent delta wave for WPW syndrome was recognized. When the delta wave on the electrocardiogram disappeared, there was no ST change. The

![Figure 1. Electrocardiogram on admission.](image-url)
serum level of cibenzoline on admission was less than 19 ng/ml. He underwent electrophysiological examination and catheter ablation for curative therapy 20 days later. The accessory pathway was successfully ablated within the coronary sinus, and thereafter he has not had any episodes of tachycardia.

**DISCUSSION**

Af is a complication in WPW syndrome in 11.5–39% of patients and the incidence of Af is more frequent than that in the general population.\(^5\) Since there are no reports of electrophysiological changes in the heart induced by sildenafil, Af may be secondarily induced through the medium of increased sympathetic activity for hypotension. However, Af was not terminated by 100 or 150 joules of DC shock. We noted the possibility of an incremental increase in the defibrillation threshold of DC shock. However, severe hypotension persisted for sixteen hours after administration. Sildenafil produces a transient reduction in systolic (8–10 mmHg) and diastolic (5–6 mmHg) blood pressure with a return to baseline values by four hours after administration in normal subjects\(^6\) and no systemic enhancement of the blood pressure-lowering effects of doxazosin and alcohol was observed in clinical trials (Pfizer, unpublished data). Severe hypotension is induced by sildenafil if nitric oxide is delivered by organic nitrate\(^1,7\) but this patient had not taken any organic nitrate. Thus, the possibility of continuous hypotension induced by sildenafil when patients are treated with doxazosin and drink alcohol should be noted.
REFERENCES


