LETTERS TO EDITOR

ASYSTOLE DURING DIPYRIDAMOLE ADMINISTRATION

Sir,

Dipyridamole is an indirect coronary vasodilator which works by increasing intravascular adenosine levels, causing functional ischemia in susceptible individuals, the basis for its use being pharmacologic stress testing.[1,2] Rarely have adverse effects like asystole been reported during use of intravenous dipyridamole, with less than 10 cases reported in literature so far. We report a case of asystole during administration of dipyridamole.

A 67-year-old woman underwent elective dipyridamole stress testing as an outpatient. Medical history included hypertension, and one of her medications was metoprolol 50 mg twice daily. During the infusion of dipyridamole, she experienced nausea, dizziness and sudden loss of consciousness, with electrocardiogram [ECG] monitoring demonstrating asystole for 20 seconds. This resolved, with return of consciousness, before advanced cardiac life support was initiated. Theophylline was however administered and was associated with a brief period of atrial fibrillation. She now complained of chest discomfort and was transferred to our facility.

After transfer to our institution, her vitals were blood pressure of 70/50 mm Hg, heart rate of 78/min and pulse oximetry of 100% on supplemental oxygen. The findings from physical examination were normal. She was stabilized with fluids, given aspirin and started on dopamine drip and heparin infusion for possible acute coronary event. Electrolytes were normal, and there was neither elevation of cardiac enzymes nor ECG evidence of myocardial infarction. No epicardial coronary artery disease [CAD] was noted on coronary angiogram. Echocardiography showed normal cardiac function. There was no evidence of sinus node dysfunction in electrophysiological evaluation and in previous ECGs. No further episodes of dysrrhythmias were noted, and the patient was eventually discharged.

Dipyridamole acts through the metabolism and transport of adenosine by preventing the reuptake of adenosine by erythrocytes and other cells, increasing intravascular adenosine levels and thereby reducing the cyclic adenosine monophosphate [cAMP] intracellularly, causing coronary vasodilatation.[1,2] Adenosine has a direct inhibitory effect on sinoatrial and atrioventricular nodes, with intravenous bolus producing bradycardia and transient asystole, usually lasting for less than 5 seconds. Methylxanthines increase intracellular cAMP and reverse the adverse effects of dipyridamole.[1]

Minor ECG changes and ventricular extrasystoles are common electrocardiographic adverse events reported, but asystole is extremely rare.[1,3] Cases of dipyridamole-induced asystole during its intravenous infusion have been rarely reported in the past. Frossad *et al.* reported 2 cases of asystole without

CAD or beta-blocker therapy and suggested a certain degree of depressive action of dipyridamole on the conducting system due to autonomic dysregulation.[4] Roach *et al.* described a case of asystole suggesting direct inhibitory effect of dipyridamole with concomitant beta blockade.[5]

In our case, dipyridamole-induced ischemia is an unlikely cause. This may suggest the depressive action of dipyridamole through adenosine on the conducting system. We feel that dipyridamole is the probable cause of asystole in this individual, based on a score of 5 on Naranjo's algorithm, and beta-blocking agents may have contributed to this.[6] In patients with underlying conduction abnormalities or bradycardia or in those undergoing concomitant beta-blocker administration, a reasonable caution should be exercised before administration of dipyridamole.

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