Successful treatment of aconitine induced life threatening ventricular tachyarrhythmia with amiodarone

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Herbal drugs are widely used for treatment of many common medical problems throughout the world. They are thought to be natural, harmless, and to have minimal side effects. However, herbal drugs can sometimes lead to fatal poisoning. Among them, dried rootstocks of Aconitum plants are most notorious for cardiac toxicities. We report a case in which a person developed life threatening polymorphic and bidirectional ventricular tachyarrhythmias after ingestion of a bowl of herbal decoction, prepared from the rootstocks of Aconitum. Intravenous amiodarone infusion effectively suppressed the ventricular tachyarrhythmia which was refractory to intravenous lidocaine.

Case report
A 61 year old previously healthy man was admitted with sudden onset of severe palpitation, chest discomfort, and perioral paraesthesia. He had suffered from low back pain and arthralgia for the past three months and received some prescribed analgesics for pain relief but in vain. He therefore took some Chinese herbal medicine for his intractable pain without prescription. One hour before admission, he ingested a bowl of a herbal decoction, prepared from boiling a combination of herbs including the processed rootstocks of Aconitum. On examination, the patient remained alert during tachycardia despite an acute ill looking appearance with cold sweating. His blood pressure was 90/65 mm Hg and pulse rate was 108 per minute. The 12 lead ECG revealed intermittent polymorphic ventricular tachycardia and occasional bidirectional alternation in QRS configurations (fig 1). Serum creatine kinase and electrolytes were within normal limits. Lidocaine 100 mg intravenous bolus was given, followed by continuous infusion at a rate of 2 mg/min for the ventricular tachyarrhythmia. Unfortunately, there were still episodes of polymorphic ventricular tachycardia with haemodynamic compromise. Therefore, amiodarone 150 mg was slowly infused over 15 minutes, followed by continuous infusion of 1300 mg for the following 36 hours. The ventricular tachyarrhythmia stopped and the patient regained normal sinus rhythm one hour after amiodarone treatment (fig 2). A total of 1450 mg of amiodarone was given without further administration of oral amiodarone. Predischarge evaluations showed normal ECG, echocardiography, and coronary angiography.

Discussion
Throughout the world, aconites have long been taken for many medical problems, including...
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Different species, time of harvesting, and the alkaloids are the main factors determining the effective in suppressing aconitine intake.

Some investigators showed that amiodarone could be used effectively and safely to treat aconitine induced ventricular tachyarrhythmia after failure of intravenous lidocaine. The mechanism by which amiodarone exerts a beneficial effect on aconitine induced ventricular tachyarrhythmia is unclear. Amiodarone can prolong myocardial action potential, which may potentiate its inhibitory effect on use dependence sodium channels. In addition, amiodarone exhibits inhibition of calcium channels. These pharmacological effects can suppress triggered activity arising from early afterdepolarisation, which is suggested to be the underlying cause of aconitine induced ventricular tachyarrhythmia. Finally, amiodarone decreases QT dispersion in myocardium and then reduces the vulnerability of sustained ventricular tachycardia. This may also play an important role in suppressing aconitine induced ventricular tachyarrhythmia.

With the increasing trend of cross mixing of populations, aconitine induced poisoning and its related arrhythmias may be more frequently encountered world wide. A high index of suspicion is necessary for those who are presenting with hypotension and malignant cardiac arrhythmias. Amiodarone effectively suppressed the polymorphic ventricular tachycardias refractory to intravenous lidocaine. This may provide an example of successful pharmacological intervention in aconitine induced ventricular tachyarrhythmias.