

An unusual cause of cardiac arrest in a hospitalized patient

Ranjan Shetty K., Anil Tumkur¹, Krishnamurthy Bhat¹, Biby Chacko

Department of Cardiology, Kasturba Hospital, ¹Manipal College of Pharmaceutical Sciences, Manipal University, Manipal, Karnataka, India

ABSTRACT

We present an unusual case of 24 year old male who was hospitalized for dental procedure and developed cardiac arrest 2 days after the procedure. The patient presented with swelling of buccal cavity for which a biopsy was taken. Two days after the procedure, apparently normal patient suddenly presented at mid night with VT and VF, which were intractable requiring multiple DC shocks. During this period arterial blood gas analysis revealed severe acidosis. The circumstances led us to suspect poisoning as one of the cause for his medical condition. We looked for commonly available toxins. One of the commonly available toxins is hand sanitizer which contains Isopropyl alcohol, glycerin and perfume. Due to prolonged cardiac arrest and intractable arrhythmia patient had sustained hypoxic brain injury. Patient remained hemodynamically stable for next 9 days although his CNS status did not improve. Patient succumbed to sepsis on 9th day. Healthcare professionals should be aware of such possibilities and treat the patients at the earliest and put a check on the easy availability of IPA based hand sanitizers.

Key words: Cardiac arrhythmia, hand sanitizer, isopropyl alcohol, poisoning

INTRODUCTION

Cardiac arrest in young without structural heart disease is uncommon. We present an unusual case of a 24 year old male who was hospitalized to undergo a dental procedure and subsequently developed a cardiac arrest 2 days following the procedure.

The patient presented with a swelling in the buccal cavity for which a biopsy was taken. Two days following the procedure, the patient suddenly presented at night with recurrent ventricular tachycardia (VT) and fibrillation (VF), which were

intractable requiring multiple DC shocks. During this period arterial blood gas analysis revealed severe metabolic acidosis. Electrocardiogram (ECG) revealed VT/VF [Figure 1]. Following termination of VT, His ECG showed deep T-wave inversion in V1-V5 [Figure 2]. Echocardiogram done showed a structurally normal heart. Patient had no preexisting medical illness. Subsequently detailed history from the wife revealed that the patient had a heated argument with his wife, after which he was not seen in bed for 2-3 hours. He returned to his bed at night. 2 hours later, patient was found to be unresponsive and cardiac arrhythmias were noted.

The circumstances led us to suspect poisoning as one of the cause for his medical condition. We looked for commonly available toxins in the hospital. Patient had access to hand sanitizers which was freely available in the hospital attached to the walls. The constituents of hand sanitizer include Isopropyl alcohol (IPA), glycerin and perfume. His gastric lavage sample was analyzed by Head Space Gas Chromatography- Mass Spectroscopy, which revealed

Access this article online	
Quick Response Code:	Website: www.jpharmacol.com
	DOI: 10.4103/0976-500X.107692

Address for correspondence:

K. Ranjan Shetty, Department of Cardiology, Kasturba Hospital, Manipal University, Manipal, Karnataka, India.
E-mail: ranjanshettyk@yahoo.com

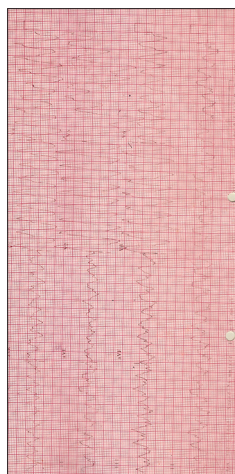


Figure 1: Electrocardiogram showing ventricular tachycardia

the presence of IPA. Patient received intravenous fluids, thiamine and sodium bicarbonate. Since IPA was dialyzable, hemodialysis was performed. The acidosis resolved following two sessions of dialysis.

However, due to the prolonged cardiac arrest he sustained hypoxic brain injury. Patient remained hemodynamically stable for the next 9 days although his conscious level did not improve. Patient succumbed to sepsis on the 9th day.

DISCUSSION

Cardiac arrhythmias and cardiac arrest in a structurally normal heart is uncommon. When it does occur in the young, it is important to consider poisoning or toxic ingestion as one of the causes.

Cases of isopropyl alcohol (IPA) based sanitizer poisoning are uncommon. Centre of Disease Control endorses the use of alcohol based hand sanitizers to prevent pathogen transmission.^[1] In a few case reports, a prisoner^[2] and a hospitalized patient had consumed ethanol based sanitizer. They underwent conservative management and recovered. A few cases with intoxication due to IPA based sanitizers have been reported.^[3-5] These patients underwent aggressive hemodialysis and had an uneventful recovery. In our patient we could reverse the toxic effects of IPA with hemodialysis but due to intractable arrhythmias patient had sustained hypoxic ischemic encephalopathy and later succumbed to sepsis.

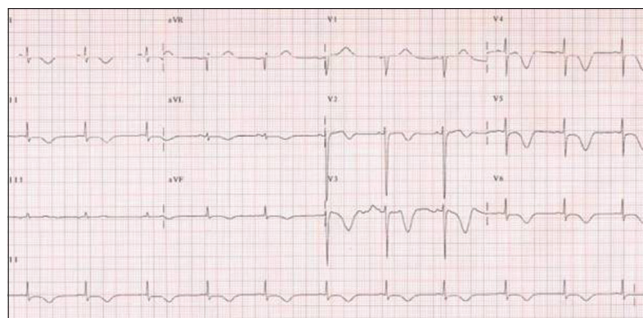


Figure 2: Electrocardiogram showing deep T-inversions in precordial leads following termination of the arrhythmia

Healthcare professionals need to be aware of common toxins which are accessible to patients in the hospital setting. Such awareness is essential, as in this case IPA intoxication was fatal. We recommend to use a caution in bold letters “may cause death if ingested” on the label of the container. Inhalation and ingestion of IPA at high concentration leads to apnea, CNS depression with subsequent coma and death. Gastritis and vomiting is common due to gastrointestinal irritation. Treatment of IPA poisoning should include decontamination by activated charcoal; supportive care is required for hypotension and respiratory depression. Hemodialysis is beneficial for the patients in the event of severe poisoning.

This case summarizes the need to educate healthcare professionals regarding the toxic effects of commonly available sanitary products in the hospital with a protocol to manage the same when it does occur.

REFERENCES

1. Boyce JM, Pittet D. Guideline for hand hygiene in health-care settings: Recommendations of the Healthcare Infection Control Practices Advisory Committee and the HICPAC/SHEA/APIC/IDSA Hand Hygiene Task Force. *MMWR Recomm Rep* 2002;51:1-45.
2. Doyon S, Welsh C. Intoxication of a prison inmate with an ethyl alcohol-based hand sanitizer [letter]. *N Engl J Med* 2007;356:529-30.
3. Thanarajasingam G, Diedrich DA, Mueller PS. Intentional ingestion of Ethanol based hand sanitizer by a hospitalized patient with alcoholism. *Mayo Clin Proc* 2007;82:1288-9.
4. Emadi A, Coberly L. Intoxication of a hospitalized patient with an isopropanol-based hand sanitizer [letter]. *N Engl J Med* 2007;356:530-1.
5. King LH, Bradley KP, Shires DL. Hemodialysis for isopropyl alcohol poisoning (letter). *JAMA* 1970;211:1855.

How to cite this article: Shetty KR, Tumkur A, Bhat K, Chacko B. An unusual cause of cardiac arrest in a hospitalized patient. *J Pharmacol Pharmacother* 2013;4:72-3.

Source of Support: Nil, **Conflict of Interest:** None declared.