

Case Report

HYPOKALAEMIA INDUCED VENTRICULAR TACHYCARDIA IN ELDERLY: A CASE REPORT

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ABSTRACT

We report a 65-year-old man who presented with sudden onset weakness all over the body, breathlessness and palpitation. He was having history of diarrhea for one day. He had not any chronic medical disease or medication. His Potassium level was 2.6 mmol/L at the time of admission and electrocardiogram was suggestive of ventricular tachycardia. Through this case, the authors highlight the importance of cardiac and electrolyte monitoring that contributes to ventricular arrhythmias (may be fatal) even in mild gastroenteritis in elderly patients.

Keywords: *Hypokalemia Elderly, Ventricular Tachycardia*

INTRODUCTION

Hypokalemia in the elderly is usually due to gastrointestinal loss or the administration of diuretics in ischemic heart disease. Ventricular arrhythmias are among cardiovascular side-effects of hypokalemia (Kc *et al.*, 2006). Ventricular tachycardia (VT) is a life threatening complication especially in elderly, it may manifest as haemodynamic stability or haemodynamic instability.

The latter group is more serious. The need management with defibrillation, without which, immediate death may occur. This paper reports on a fatal case of VT due to hypokalemia who was haemodynamically unstable and immediate defibrillation saved his life.

CASES

A 65-year-old male patient was admitted to the medicine emergency department with complaint of sudden onset weakness all over the body, drowsy, breathlessness and palpitation. He was suffering from nausea and malaise with a history of loose motion for one day. He denied any history of any cardiac disease, hypertension, diabetes mellitus or cerebrovascular disease in past. He was non-smoker and non-alcoholic.

On examination, his blood pressure was 90/60mmHg, heart rate was 160 beats/min in right arm supine position. Cardiac auscultations and neurological examination were normal. On admission, significant laboratory results were as follows; Hemoglobin: 8.7 g/dL, potassium: 2.6 mmol/L, calcium: 6.3 mg/dL and magnesium: 1.93 mg/dL. His troponin-I was within normal limit. ECG was done which was suggestive of monomorphic LBBB morphology ventricular tachycardia (figure 1).

Monitor was also showing signs of VT. Heart rate was 160/minute. Immediately the patient was prepared for DC shock. DC shock of 200 joules administered immediately. Fortunately after DC shock, patient reverted to sinus rhythm (figure -2). His heart rate was 130/minute, regular and BP was-110/70mm of Hg. Patient regained consciousness.

His potassium level were corrected by giving Potassium chloride 40 meq/l in 500 cc 0, 9% Normal saline. After these measures along with anti-ischemic, anti-coagulant and anti-platelet therapy, prophylactic IV lignocaine was started in a dose of 2mg/min and continued for 12 hours.

He was planned for echocardiography as well as coronary angiography which came to normal. After these measures, patient was quite symptom free and haemodynamically stable on follow up without ant ischemic medication.

Case Report

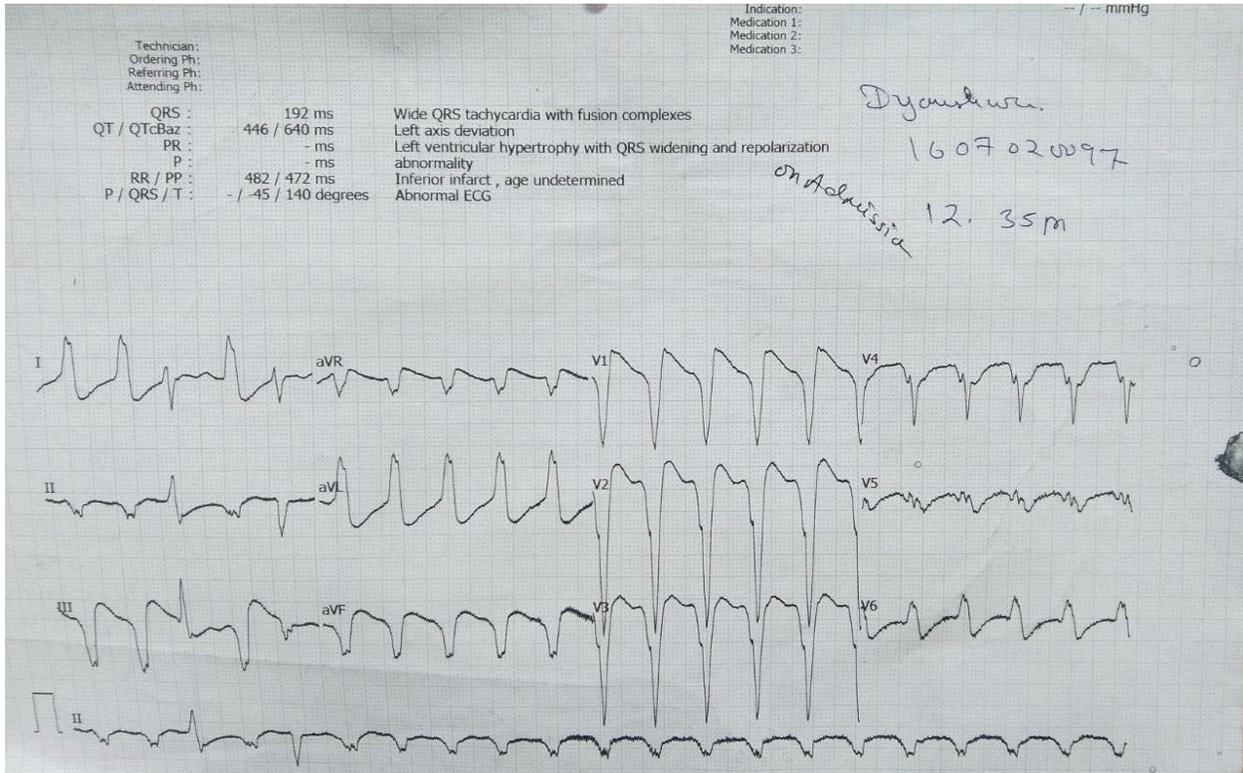


Figure 1: ECG showing Monomorphic LBBB morphology ventricular tachycardia

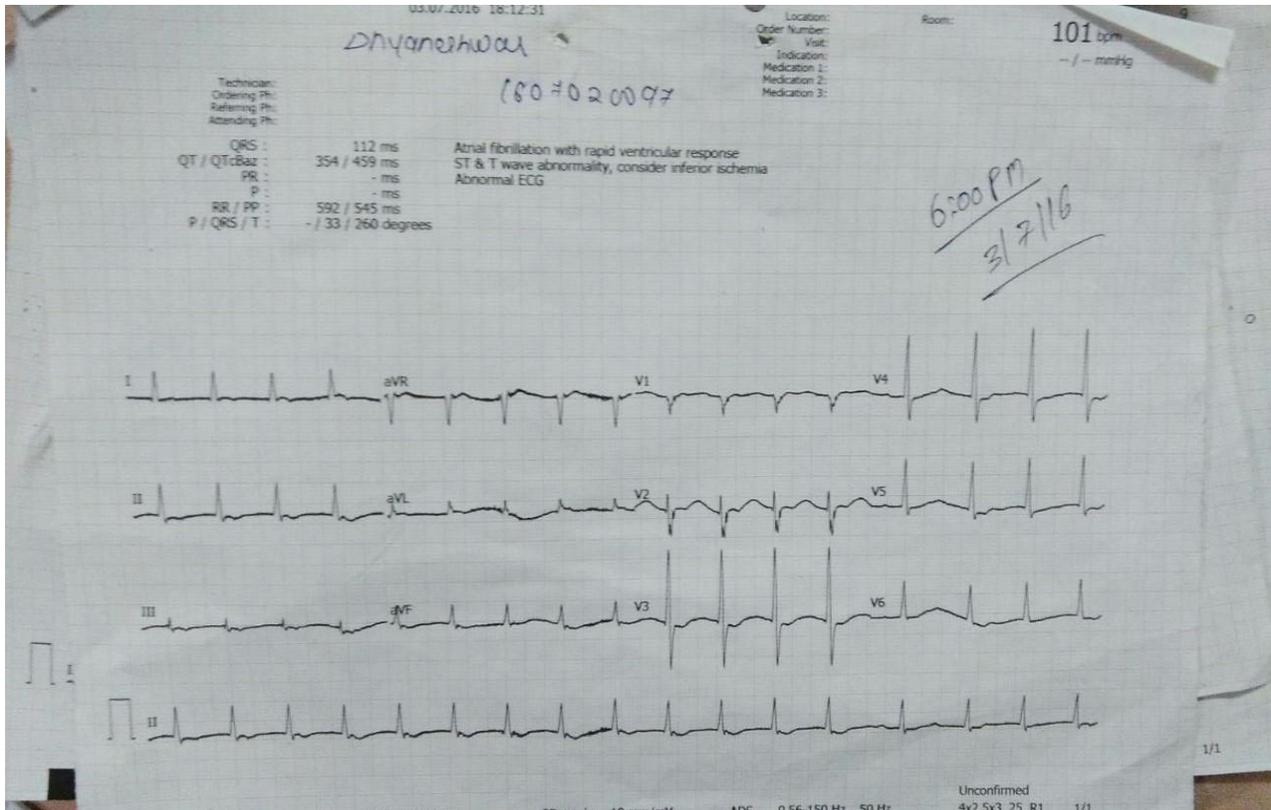


Figure 2: Normal sinus rhythm

Case Report

DISCUSSION

Mild gastroenteritis in elderly patients may cause serious life threatening condition because of a weakened immune system and other underlying chronic medical diseases as it leads to serious electrolyte imbalance like hypokalemia (Trinh and Prabhakar, 2007). The clinical manifestations of hypokalemia usually start when serum concentrations decrease 2.5 mEq/L. Ventricular arrhythmias are among cardiovascular side-effects of hypokalemia (Buyukcam and Altinbas, 2014). The elderly and those patients with underlying ischemic heart disease, appear to have the highest risk for hypokalemia-related complications (Osadchii, 2010). We experienced one of the most serious complications of hypokalemia with a potassium level of 2.5 mEq/L and the cause of hypokalemia was only 2-3 episode of diarrhea on day one in our patient. Although malnutrition, some diuretics and antibiotics can cause hypokalemia, the patient wasn't receiving any medication and he didn't tell any history of loss of appetite, so we excluded malnutrition and medication as the cause of hypokalemia. Possible pathogenesis of proarrhythmic effects of hypokalemia upon ventricular muscle may be (i) prolonged ventricular repolarization, (ii) slowed ventricular conduction, and (iii) abnormal ventricular automaticity (Osadchii, 2010).

In conclusion, even a simple gastroenteritis could provide a basis for a serious ventricular fibrillation in elderly people. In the elderly patients that have gastroenteritis and presented with symptoms of dehydration and hypotension, blood electrolyte levels should be checked.

REFERENCES

- Buyukcam F and Altinbas A (2014).** Diarrhea Related Hypokalemia Induced Ventricular Fibrillation in a Healthy Elderly Patient. *The New Journal of Medicine* **31** 135-136.
- Kc M, Gurubacharya DL, Lohani R and Rauniyar A (2006).** Serum urea, creatinine and electrolyte status in patients presenting with acute gastroenteritis. *Journal of Nepal Medical Association* **45** 291-4.
- Osadchii OE (2010).** Mechanisms of hypokalemia-induced ventricular arrhythmogenicity. *Fundamental & Clinical Pharmacology* **24** 547–559.
- Trinh C and Prabhakar K (2007).** Diarrheal diseases in the elderly. *Clinics in Geriatric Medicine* **23** 833-56.