CRCP Case Reports in Clinical Practice

Case Report

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High Grade AV Block Associated with Dipyridamole Infusion

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Citation Khalili M., Hoseini MS., Bayat F., Jahani M. High Grade AV Block Associated with Dipyridamole Infusion. Case Reports in Clinical Practice. 2022; 7(4): 183-186.

Running Title AV Block Associated with Dipyridamole Infusion

Article info:
Received: June 04, 2022
Revised: June 28, 2022
Accepted: July 19, 2022

Keywords:
Myocardial perfusion imaging;
Dipyridamole;
AV block

ABSTRACT

The use of dipyridamole for thallium imaging has proved very successful in demonstrating coronary arterial disease [1]. Dipyridamole causes coronary arteriolar vasodilation by increasing interstitial adenosine levels by inhibition of both adenosine deaminase and facilitated cellular adenosine uptake. Differential flow changes occur in coronary arteries if a significant luminal stenosis exists [2]. Intravenous infusion of dipyridamole is safe although transient noncardiac side effects are common. These side effects are mostly mild and not need to treat although can be treated with aminophylline [5]. High-grade AV block after dipyridamole has been described in few case reports and mostly was associated with transient myocardial ischemia [2-4]. We describe a case of long-lasting high grade AV block following dipyridamole infusion. In context of near normal baseline ECG. In our case the AV block occurred without evidence of ischemia in myocardial perfusion imaging and we think it can be an unexpected adverse effect of dipyridamole and clinicians should be aware of AV block as a possible adverse effect of dipyridamole.

Background

The use of dipyridamole for thallium-201 imaging has proved to be very successful in demonstrating coronary arterial disease [1]. Dipyridamole causes coronary arteriolar vasodilation by increasing interstitial adenosine levels by inhibition of both adenosine deaminase and facilitated cellular adenosine uptake. Differential flow changes occur in coronary arteries if a significant luminal stenosis exists [2]. Intravenous infusion of dipyridamole is safe although transient noncardiac side effects are common. (Side effects such as chest pain, headache, or dizziness.) These side effects are mostly mild and not need to treat although can be treated with aminophylline [5]. High-grade AV block after dipyridamole has been described in few case reports and mostly was associated with transient myocardial ischemia [2-4].

We describe a case of long-lasting high grade AV

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block (about 4 minutes and 30 seconds) following dipyridamole infusion. In context of near normal baseline ECG.

Case presentation

A 65-year-old lady without any coronary artery disease (CAD) risk factor referred for myocardial thallium scan with dipyridamole, because of atypical chest pain. The baseline ECG was normal sinus rhythm without conduction abnormality and only had T inversion in lead III (Fig. 1). Physical examination was unremarkable.

Blood pressure and ECG monitoring were established. An angiocatheter was inserted in her right arm. The procedure was explained to her and no sign of anxiety or stress was observed. The blood pressure was 130/80 and pulse rate was 75/min. She had no signs of chest pain, shortness of breath or neurological symptoms. Dipyridamole was infused while the patient was in the supine position and blood pressure and ECG were continuously monitored. After infusion of dipyridamole (in post infusion phase) her ECG showed high grade AV block. After aminophylline infusion a few minutes later rhythm converted to sinus rhythm. This scenario took about 4 minutes and 30 seconds (Fig. 2). A 4-hour ECC monitoring in the emergency unit showed no rhythm disturbance and patient was fully conscious without any cardiac symptom or non-cardiac symptoms. Thallium scan was negative for ischemia. Patient refused any other study and longer monitoring.

Discussion

Transient second or third degree AV block is very rare after dipyridamole infusion and was asymptomatic in the majority of cases. The prevalence of AV block (second or third degree) is about 0.45%. Intracardiac electrophysiologic studies (EPS) have demonstrated that intravenous dipyridamole increases sinus node automaticity, and reduces atrial, AV nodal and ventricular refractory periods, prolongs the interatrial and AV nodal conduction [6]. High-grade AV block after dipyridamole has been described in few case reports and mostly was associated with transient myocardial ischemia. It seems that the presence of conduction abnormalities at baseline

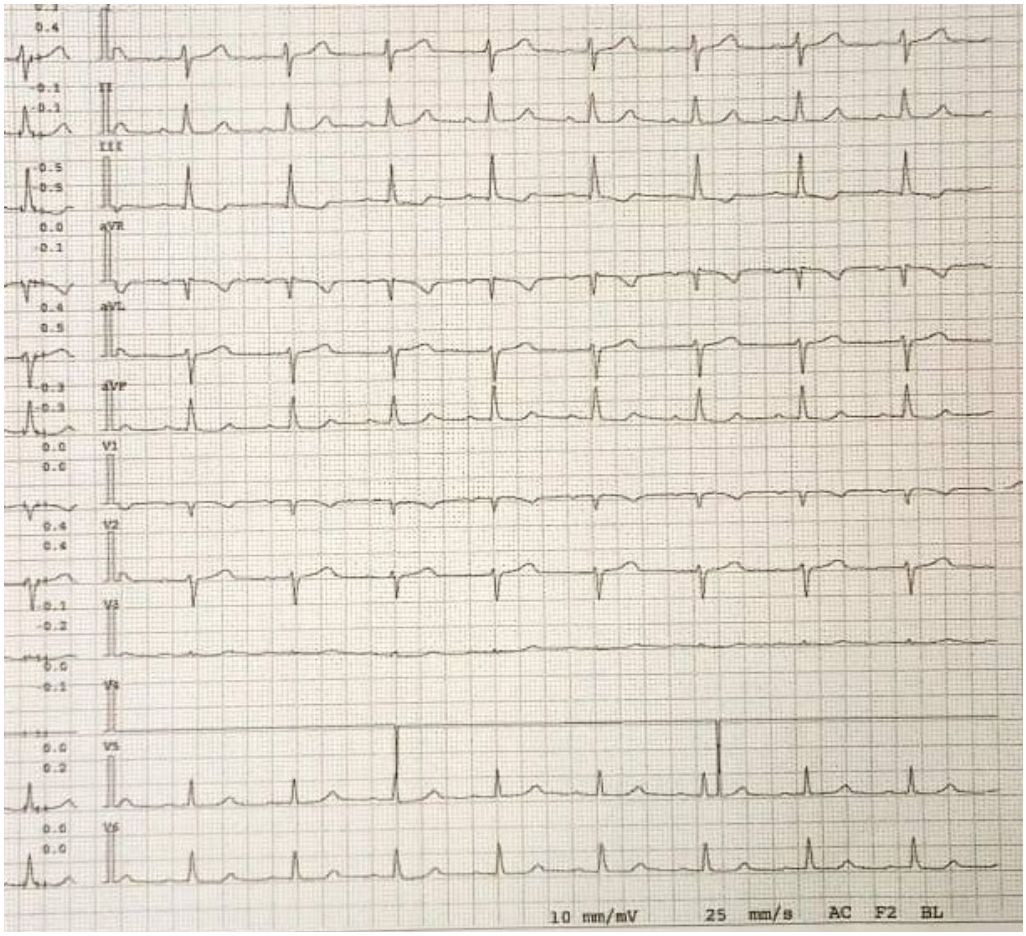

Fig. 1. baseline ECG

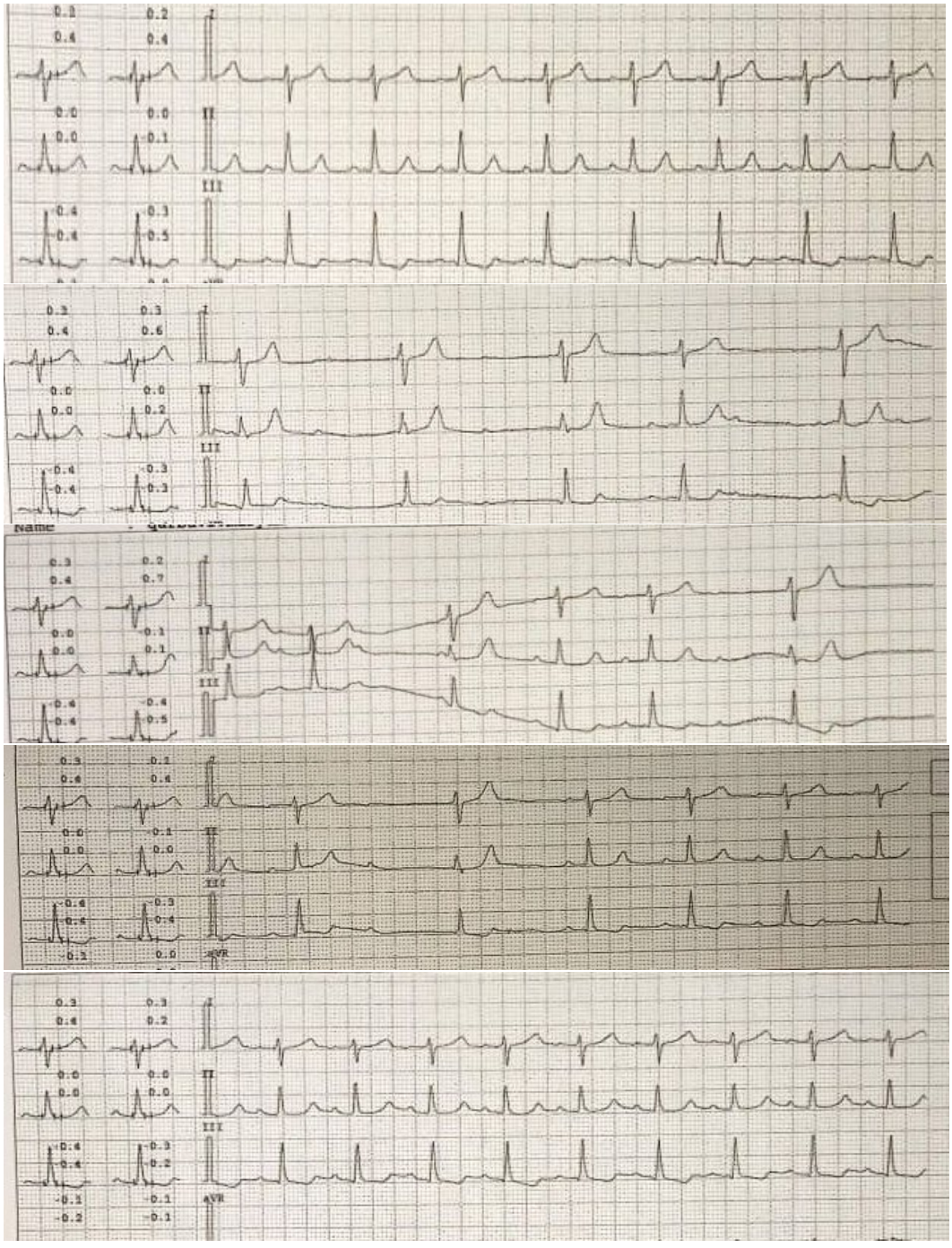

Fig. 2. Continues ECG tracing of lead I, II and III

is a risk factor [5]. But in our case the beseline ECG was near normal and no evidence of conduction abnormality in ECG or ischemia in myocardial perfusion study. We could find only four similar case reports in literature. All of them [2-4] were associated with ischemia except one of them [5]. In our case, the AV block occurred without evidence of ischemia in myocardial perfusion imaging and we think it can be an unexpected adverse effect of dipyridamole and clinicians should be aware of AV block as a possible adverse effect of dipyridamole. An alternative explanation is that this arrhythmia could have been caused by vagal activity. Besides, another possibility is that the study was false negative.

Ethical Considerations

Permission was obtained from the patient to publish her medical documents anonymously for a scientific article.

Compliance with ethical guidelines

There were no ethical considerations to be considered in this article.

Funding

This research did not receive any specific grant from funding agencies in the public, commercial, or nonprofit sectors.

Conflict of Interests

The authors have no conflict of interest to declare.

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