Short Communication

Paclitaxel-induced ST-Segment Elevations

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ABSTRACT

A 51-year-old woman presented with severe chest pain minutes after starting intravenous paclitaxel as a part of the systemic chemotherapy due to ovarian carcinoma. The electrocardiogram (ECG) revealed sinus rhythm with ST-segment elevations in inferior and anterior leads. The ST-segment elevations resolved immediately after sublingual nitroglycerine. Cardiac troponin T and CPK MB levels remained in the normal range at repeat measurements. It was presumed that in spite of standard premedication, paclitaxel had induced acute coronary syndrome with ST-segment elevations in this patient.

Introduction

Paclitaxel is one of the widely used antineoplastic agents in the treatment of ovarian carcinoma.[1] Hypersensitivity reactions due to intravenous paclitaxel administration requiring premedication have long been documented.[2,3] We report a patient with ovarian carcinoma who experienced an acute coronary syndrome with widespread ST-segment elevations shortly after starting paclitaxel infusion in spite of standard intravenous premedication.

Case Report

A 51-year-old woman presented with severe chest pain and diaphoresis within minutes after starting intravenous paclitaxel as a part of a second course of systemic chemotherapy due to ovarian carcinoma. She had a history of inferior myocardial infarction, which was treated by primary percutaneous coronary intervention to the right coronary artery (RCA) four weeks previously. On physical examination she appeared distressed with a blood pressure of 110/50 mmHg, and a heart rate of 88 beats per minute. The ECG revealed sinus rhythm with ST-segment elevations in inferior and anterior leads (Fig. 1A). The ST-segment elevations resolved immediately after sublingual nitroglycerine but the chest pain radiating to the left shoulder continued (Fig. 1B). She was transferred to the cardiac catheterization laboratory, and 80% stenosis of distal left circumflex (LCx) artery with TIMI 3 flow was found on coronary angiography (Fig. 2A). The recently stented RCA, left main coronary artery, and left anterior descending artery were found patent (Fig. 2A and 2B). A successful PCI with a bare metal stent was performed for the LCx lesion. Cardiac troponin T and CPK MB levels remained in the normal range at repeated measurements. Normal left ventricular systolic function without regional wall motion abnormality was detected on echocardiography.

The hospital records revealed that the previous inferior myocardial infarction which was treated by primary PCI had occurred in a similar setting within minutes after starting intravenous paclitaxel. The inherent relationship was not noticed at that time. Following the second cardiac event, it was presumed that paclitaxel had induced the acute coronary syndromes with ST-segment elevations in this patient with underlying coronary artery disease.

She received the first course of intravenous carboplatin as a single agent for the treatment of ovarian cancer four weeks after her discharge uneventfully.

Discussion

Paclitaxel is frequently used as a single agent or in a combination regimen for the treatment of ovarian cancer.[1] Premedication regimens to prevent hypersensitivity reactions occurring within minutes of paclitaxel administration are generally effective.[2] However the incidence of such reactions in patients with ovarian cancer were found considerably higher than those reported in patients with other carcinomas.[3] Acute myocardial infarction and cardiac arrest possibly due to coronary vasospasm are rare but life threatening complications of paclitaxel therapy.[4,5]

Our patient experienced severe chest pain and ST-segment elevations within minutes after starting paclitaxel infusion in spite of intravenous premedication with dexamethasone, ranitidin, pheniramine, and granisetron. The ECG abnormalities, resolved after sublingual nitroglycerine,

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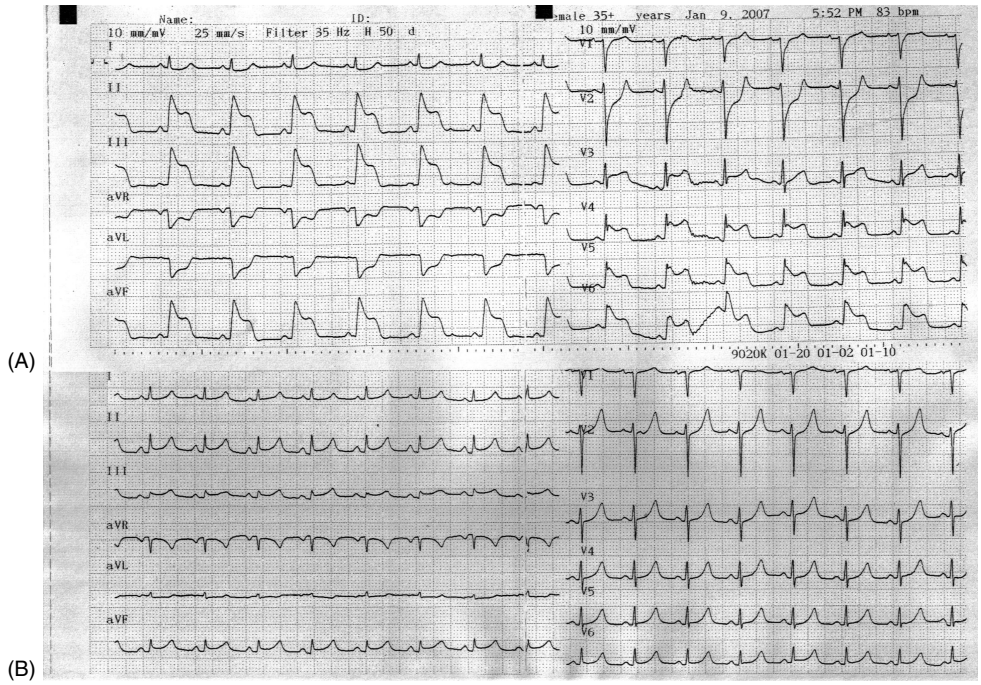

Figure 1. (A) Twelve lead electrocardiogram recorded shortly after the initiation of intravenous paclitaxel showing widespread ST-segment elevations. (B) Twelve lead electrocardiogram recorded following sublingual nitroglycerine administration showing marked normalization of the ST-segment elevations.

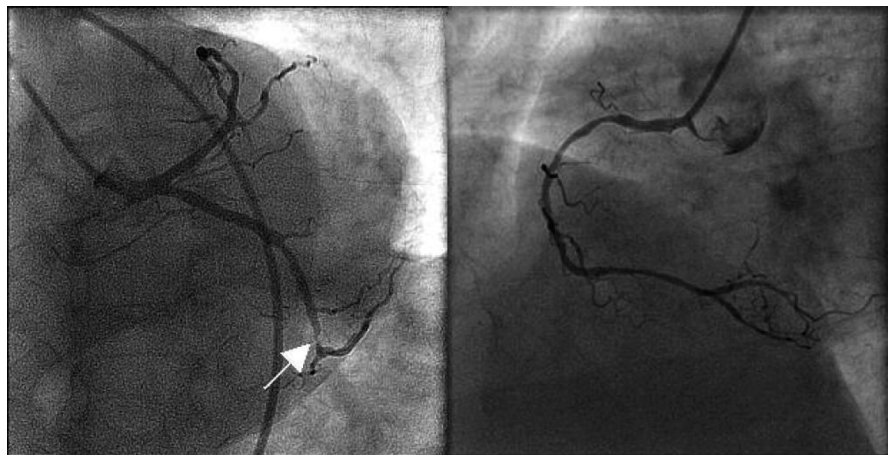

Figure 2. (A) Angiographic image showing the stenosis of distal left circumflex artery (arrow), patent left main coronary artery, and patent left anterior descending artery. (B) Angiographic image showing patent right coronary artery.

suggested a possible coronary vasospasm superimposed on atherosclerotic coronary artery disease. Endothelial dysfunction may be an explanation for the serious ischemic cardiac events related to paclitaxel infusion in this patient with documented coronary artery disease. A paclitaxel-induced cardiac problem may be a reversible acute coronary syndrome as demonstrated in this patient or may lead to an acute myocardial infarction as documented previously in the same patient.

The risk for the development of severe cardiac complications should be considered before starting paclitaxel therapy in patients with underlying coronary artery disease. An unnoticed rechallenge may particularly lead to dire consequences.

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