An Unusual Etiology Of Vascular Toxicity And Its Treatment With Cervical Sympathetic Blockage

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Abstract

Gemcitabine is a nucleoside analogue used commonly in chemotherapy for solid tumors. One of its common side effects is vascular toxicity. Case due to Gemcitabine therapy is a urethral carcinoma. The patient was admitted with muscle pain in upper extremity of his finger with movement, sensitiveness, hypoesthesia, pallor, and cyanosis during the second cure of Gemcitabine treatment. After he was diagnosed with microangiopathy due to Gemcitabine, vasodilatation therapy and ten sets of cures of cervical sympathetic blockage were applied. Following the treatment, sign and symptoms disappeared dramatically. With regard to this case we believe that cervical sympathetic blockade is valuable as surgical sympathectomy in early stages of convenient cases.

INTRODUCTION

Chemotherapeutic agents belong to the group of substances that cause vascular toxicity. Vascular toxicity tables can be seen in a wide range, from rare asymptomatic vascular lesions to severe systemic vascularity. Gemcitabine is a new generation cytostatic agent with a low toxicity profile, and is believed to have better antitumor activity and therapeutic balance. Despite the ongoing research to mitigate the side effect profile, the most frequently encountered side effect of this chemotherapeutic agent is vascular toxicity besides nausea, hair loss and myleosuppression. Discontinuation of chemotherapeutic agent, corticosteroid, immunosuppressive treatment, iloprost infusion, antispasmodics, calcium channel blockers and surgical sympathectomy are mentioned to be the methods for the treatment of vascular complications (1).

CASE REPORT

A 60-year-old male patient who had high-grade papillary urethral carcinoma came to our clinic with motional myalgia, sensitivity, numbnness, coldness and bruise in his left-hand fingers. His nephrectomy operation was cancelled because of his urethral carcinoma two months ago, but he did not undergo radiotherapy. He was treated with 1250 mg/m^2 Gemcitabine by the oncology clinic. His symptoms began during the second session of the treatment, and increased gradually within 7 days. The nonsmoker patient showed no significant feature in his anamnesis, family history and past illnesses. All the chemotherapeutic treatments were applied to his left forearm vein. In his physical examination, lower and upper extremity pulses were intact, left radial arterial pulse was weaker than the right one, the medial and distal phalanxes of all the fingers except for thumb of the left hand were cold, cyanosis and sensitive to touching Figure-I. Oxygen saturation with pulse oxymetry of the fingers except for the left thumb could not be measured. Creatine phosphokinase and sedimentation were high in his biochemical study. The patient was admitted as microangiopathy according to chemotherapeutic agent, and his chemotherapy was suspended. Continuous intravenous 1000 U / hour nonfractioned heparin and bencyclane hydrogen fumarate inside (ANGIODEL ® Organon) plasma expanders were applied as a treatment. 10 sessions of cervical sympathetic blockage accompanied this medical therapy.
DISCUSSION

Acute arterial insufficiency frequently occurs due to intrinsic blockage of the arteries with coagulum or embolic material. Potential source of risk for embolus is the intracardiac thrombus which occurs in myocardial infarction, mitral stenosis and atrial fibrillation. Atheromatous plaques that break off from the atherosclerotic arterials cause distal micro embolus. Intra-arterial catheterization processes make the atheromatous plaques break off easily from the atherosclerotic places. Chemotherapeutic agents also often cause vascular toxicity and as a result, thrombotic microangiopathy or vasculitis may occur (2).

An important objective of the treatment of patients with cancer is to minimize the toxic side effects and to increase the life qualities. While new chemotherapeutic agents which are less toxic are being discovered, the number of vascular complication cases in literature increases (3).

We can enumerate vascular complications of chemotherapeutics as capillary leakage syndrome, vasoocclusive disease in liver, lungs, eyes, skin and fingers, distal arterial thrombosis and vasculitis (2).

The pathogenesis of vasculitis is thought to have occurred by hypersensitization mechanisms to any stimulus. The most evident clinical feature is the affectness of vessels (2).

Vascular toxicity cases due to Gemcitabine are frequently stated in literature (3,4,5,6). The dominant side effects of Gemcitabine are myleosuppression, fever, flushing, peripheral edema, nausea, hemolytic uremia syndrome, temporary dyspnea, and vascular toxicity. Rarely, severe pulmonary toxicity like diffuse interstitial lung disease, and in %20 of the patients, flu like syndrome with myalgia and fever occurs (4).

Birlik et al. showed complete recovery by terminating the treatment, but there is no information about the continuation of the agent after the recovery of the vascular complication (3).

In our study; the same chemotherapeutic agent was used after the recovery of the vascular complication, but we arranged the dose, application point and duration. We did not see any repeating vascular toxicity in the patients at their monthly controls.

Venat-Bouvet et al. presented two cases; one of them recovered after terminating the chemotherapy and the other one was cured with iloprost infusion (5).
Niho et al. presented a patient who had pulmonary vasculitis due to chemotherapeutics, died of diffuse pulmonary hemorrhage (6).

In laboratory examinations that are conducted while the complications are active: erythrocyte sedimentation rate, number of eosinophiles, blood creatine phosphokinase level and acute phase reactants may be ascertained high (2,3). In our case; the patient’s sedimentation rate and blood creatine phosphokinase levels were high and these levels were found to be normal by the second week of the treatment.

The first step of the treatment is to have a break to the chemotherapeutic agent, and then to use corticosteroids, immunosuppressive and ilomedine as a medical therapy. Birlik et al. used prednisolone-cyclophosphamide (4), Voorburg et al. used prednisolone-cholsicine (4), Venat-Bouvet et al. used iloprost trometamo (ilomedin) (4) by infusion and all had successful results.

In our study, we gave a break to Gemcitabine therapy and used heparin, vasodilatation agents and cervical sympathetic blockage application.

For the therapy of medicine induced thrombotic microangiopathy; antispasmodic agents, calcium channel blockers, corticosteroids, immunosuppressive and sympathectomy operations are frequently mentioned in textbooks and in literature. In our investigation, we did not find any literature about chemotherapeutic agent binding vascular toxicity and sympathetic blockage.

When surgical sympathectomy is thought to have been applied as a treatment of chemotherapeutic agent binding vascular toxicity, especially in cases where patient is not suitable for general anesthesia and surgical operation, we believe that sympathetic blockage should be considered a useful alternative method.

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