

Myasthenic Crisis Induced by Chemotherapy in Treatment of Invasive Thymoma

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Saleem Qureshi, Tariq Razzaq (Department of Medicine, Medical Unit II, Holy Family Hospital, Rawalpindi Medical College, Rawalpindi.)

Introduction

Myasthenia gravis (Paralysis Sana non Habitualis) is a neuromuscular disease, characterized by fluctuating weakness of skeletal muscles, which is increased by use, at least partially relieved by rest and improves specifically by anticholinesterases. Myasthenic crisis is a life threatening condition in which there is sudden failure in respiratory function due to muscle weakness. It starts with occurrence of short attacks of dyspnoea, frequently with inspiratory stridor, increasing bulbar weakness, restlessness, insomnia, tachycardia and hypertension¹. Infectious diseases, fever, psychologic stress, hypo- or hyperthyroidism, extremes of weather and certain drugs (anesthetics, muscle relaxants, anticonvulsants, antiarrhythmics and even some antibiotics)¹ can precipitate the myasthenic crisis. We report a patient of invasive malignant thymoma (Stage III) who developed acute myasthenic crisis after the first dose of chemotherapy.

Case Report

A 24 years old male was admitted with 15 days history of drooping of left eye lid. It was sudden in onset which disappeared on waking in the morning but appeared in the course of day and was more marked in the evening. This complaint was followed by drooping of the right eye lid and diplopia with the same diurnal variation. On clinical examination bilateral ptosis and internuclear ophthalmoplegia were present. Eye closure became weak after repeated tight closing of the eyes. Tensilon test was strongly positive. X-ray chest showed a mass in the left perihilar region and tomography revealed a mass in the anterior mediastinum projecting onto the left hilum, adherent to anterior chest wall, without evidence of breakdown or calcification. Other relevant investigations were in normal limits. Diagnosis of myasthenia gravis with thymoma² (Grade-I Disability)³ was made. He was put on anticholinesterases (mestinon 60 mg* Q.I.D.) and prednisone (40 mg/day) and the condition improved. He underwent thymectomy⁴ and before operation plasmapheresis was done. The thymoma involving the left lung and pericardium was excised into two, along with a part of pericardium. Histopathology showed invasive malignant thymoma stage III. Recovery after surgery was uneventful. After 15 days of surgery, he developed generalized weakness of all muscles, and difficulty in chewing food. Disability score was of class II. Dosage interval of anticholinesterase was decreased to 4 hours and dose of steroids was increased to 60 mg/day⁵. Patient's disability score improved to class I. After one and a half month of surgery, he was given the first dose of chemotherapy including Cisplatin 80 mg and doxorubicin 65 mg. Eight hours after chemotherapy, he went into myasthenic crisis. Intensive medical management with ventilator support was given. Plasmapheresis was done twice and high doses of steroids were given. The patient did not improve and expired after 10 days.

Discussion

Different chemotherapeutic regimens⁶ are used in treatment of invasive thymoma after surgical resection and radiotherapy or in cases with unresectable disease⁷. Cisplatin has been used both as

monotherapy⁸⁻¹⁰ as well as in combination with other drugs like doxorubicin⁸, bleomycin, yincristine and cyclophosphamide⁷⁻¹². Major toxic effects of cisplatin are nausea and vomiting^{7,11}. Other toxic effects are nephrotoxicity, ototoxicity and bone marrow depression. Neurological effects reported include peripheral sensorimotor neuropathy and seizures. Doxorubicin induced alopecia, bone marrow depression and cardiotoxicity is dose related, rarely seen at dosage below 500 mg/m². Extensive review of literature showed no study mentioning cisplatin or doxorubicin toxicity as a precipitating factor for acute myasthenic crisis.

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