5-Fluorouracil cardiotoxicity complicating treatment of Stage IIB cervical cancer - case report

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Summary

A 31-year-old female was found to have FIGO Stage IIB squamous cell carcinoma of the cervix. The patient began her prescribed radiation therapy and 5-fluorouracil radio-sensitizing chemotherapy. During the first day of infusion, she began having severe shortness of breath. Cardiac evaluation revealed acute congestive heart failure with a cardiac ejection fraction of 19%. Radiation was continued without chemotherapy. Four years later, the patient is alive and well with an ejection fraction of 53%.

Key words: Cisplatin; 5-Fluorouracil cardiotoxicity; Cervical cancer.

Introduction

Since the publication of several articles in the late 90's and early 2000's, the standard treatment for advanced cervical cancer (Stage IB2 to IVA) has changed from radiation therapy alone to radiation therapy combined with chemotherapy [1-3]. The best chemotherapy to use is, as of yet, not defined. Although survival is increased by using radiation sensitizing chemotherapy, acute complications are also increased. The late effects of this shift in paradigm wil not be known for years to decades.

The purpose of this article is to present a case of a rare complication involving reversible 5-fluorouracil-induced cardiotoxicity in a patient with Stage IIB squamous cell carcinoma of the cervix.

Case Report

A 31-year-old, active, non-smoking, thin, female presented for evaluation of an abnormal Papanicolau smear (pap smear) and biopsies showing squamous cell carcinoma in 2002. Her last pap smear was more than ten years before. Physical examination confirmed the presence of a Stage IIB squamous cell carcinoma of the cervix. Chest roentgengram revealed no disease in the lungs, and a normal size cardiac profile. Computed tomographic (CT) study of the lower chest, abdomen and pelvis revealed no evidence of pericardial effusion, no demonstrable lymphadenopathy or peritoneal metastatic disease. Her FIGO stage was IIB.

After thorough counseling, the patient elected to undergo radiation therapy with radiation sensitizing 5-fluorouracil (225 mg/m^2/day for 5 days/week for 6 weeks). She began the first day of the first week of her prolonged infusion 5-fluorouracil, and within 24 hours, developed shortness of breath, dyspnea on exertion and chest pain. She was admitted to the cardiac intensive care unit with the presumed diagnosis of acute myocardial infarction (MI). All serum tests were negative for an acute MI, but a transthoracic echocardiogram revealed an ejection fraction of 19%. She was managed medically, and allowed to continue with her prescribed radiation therapy without adjuvant 5-fluorouracil.

Six months after the acute event she had returned to normal function. Four years later she is back to her previous activity level with complete resolution of her 5-fluorouracil-induced cardiotoxicity by echocardiogram (ejection fraction 53%).

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Discussion

5-fluorouracil cardiotoxicity is a known entity without a known mechanism [4]. Classically, a patient's ejection fraction has been shown to return to normal several months after stopping 5-fluorouracil therapy [4].

In the current report, a young woman suffered acute 5-fluorouracil cardiac toxicity within hours after starting an infusion for radiation-sensitizing. Although it resolved, the toxicity was severe enough that only radiation was used because of the high volumes of fluid required if she would have been switched to cisplatin.

Unless 5-fluorouracil shows a statistically significant survival advantage over weekly cisplatin in patients receiving radiosensitizing chemotherapy for cervical cancer, we would recommend using weekly cisplatin [5]. Cisplatin use first would allow the patient to get the benefit of radiosensitizing chemotherapy without exposure to the risks of 5-fluorouracil.

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