Hypersensitivity reaction to carboplatin: successful resolution by replacement with cisplatin

G. Porzio, *M.D.*; **P. Marchetti,** *M.D.*; **I. Paris,** *M.D.*;
F. Narducci, *M.D.*; **E. Ricevuto,** *M.D.*; **C. Ficorella,** *M.D.*

Medical Oncology Unit, University of L'Aquila (Italy)

Summary

Hypersensitivity reactions caused by carboplatin rarely occur. These reactions can cause lethal complications and make subsequent therapeutic approaches difficult. To date, only a few cases of successful resolution of hypersensitivity by replacement of carboplatin with cisplatin have been reported.

We report on a patient with serous papillary extra-ovarian peritoneal carcinoma who developed a hypersensitivity reaction after the 10th weekly administration of carboplatin. Two weeks after reaction, intradermal skin testing with paclitaxel, carboplatin, cisplatin, and mannitol showed intense reaction only to carboplatin. On the basis of these results, the patient was changed to a chemotherapy with cisplatin and paclitaxel. A further eight courses of chemotherapy were administered without evidence of hypersensitivity reactions.

Carboplatin seems to be successfully replaceable by cisplatin in case of hypersensitivity reactions.

Key words: Carboplatin; Hypersensitivity; Cisplatin replacement.

Introduction

Hypersensitivity reactions caused by carboplatin occur rarely; until 1999, more than 50 cases were reported in the international literature [1]. An increased incidence of hypersensitivity reactions have been reported, probably as a result of the extended employment of carboplatin, [2, 3]. These reactions can cause lethal complications and make subsequent therapeutic approaches difficult.

A standard approach to patients with hypersensitivity reactions is not available.

To date, only a few cases of successful resolution of hypersensitivity by replacing carboplatin with cisplatin have been published [4-6].

We report on a patient with serous papillary extra-ovarian peritoneal carcinoma who developed a hypersensitivity reaction to carboplatin administered weekly.

Case report

A 74-year-old woman, gravida 3, para 3, was admitted to our medical oncology unit in August 1999 because of abdominal pain, asthenia and progressive abdominal enlargement.

The patient had been well until four months earlier when the referred symptoms appeared and became progressively more evident. In December 1998 she underwent total abdominal hysterectomy, bilateral salpingo-oophorectomy, and pelvic lymphadenectomy for an endometrial carcinoma (endometrioid; FIGO stage Ib); peritoneal washing was negative; Ca 125 before surgery was 12 U/ml.

A pelvic and abdominal CT scan revealed ascites. No pelvic or abdominal masses were evidenced. Ca 125 was 1209 U/ml. Laparoscopy with biopsies of multiple peritoneal nodules was performed. No abdominal masses were detected. Histologic findings were consistent with a serous papillary extra-ovarian peritoneal carcinoma.

After informed consent, chemotherapy with carboplatin and paclitaxel was started (carboplatin AUC 2.5, paclitaxel 60 mg/sqm d 1, weekly for three consecutive weeks followed by a one-week rest; before paclitaxel standard premedication with dexametasone, diphenydramine and ranitidine was administered). This schedule, with a total amount of 18 weekly courses, is under investigation at our institution for the treatment of patients with ovarian and serous papillary extra-ovarian peritoneal carcinoma in patients older than 70 years.

Resolution of ascites and normal Ca 125 were registered after six administrations of chemotherapy.

A few minutes after the 10th carboplatin administration, the patient developed tongue and facial edema, abdominal cramps, pruritus, precordial pain, anxiety, fear, dyspnea, hypertension and tachycardia.

Carboplatin infusion was immediately stopped; furosemide, metilprednisolone and benzodiazepin were administered intravenously; oxygen was delivered by BLB mask.

Symptoms resolved rapidly and the patient was discharged with oral steroids and diphenhydramine for three days.

Two weeks after the reaction, intradermal skin testing with paclitaxel, carboplatin, cisplatin, and mannitol was performed. The patient showed an intense reaction only to carboplatin.

On the basis of these results, the patient was changed to chemotherapy with cisplatin and paclitaxel (cisplatin 25 mg/sqm; paclitaxel 60 mg/sqm day 1, weekly for three consecutive weeks followed by a one-week rest).

A further eight courses of chemotherapy were administered without evidence of hypersensitivity reactions.

The patient experienced a complete response and, to date, is free of disease.

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Discussion

Hypersensitivity reactions to carboplatin have been described in about 50 patients [1]. Our case is the first one in which a reaction occured with a weekly schedule.

A reaction develops a few minutes after starting carboplatin infusion and can include all symptoms of a histamine-induced type I hypersensitivity.

Differently from most of the cases published, our patient showed hypertension rather than hypotension.

Continuation of carboplatin after the evidence of hypersensitivity is contraindicated because 37% of patients further treated with carboplatin relapsed again [1].

Despite some successful case reports [7, 8], desensitization protocols with corticoids and antihistamines present 33% of failures [1].

Recently, a simplified skin test has been proposed in order to predict hypersensitivity to carboplatin, and a desensitization protocol for patients with a positive skin test is under evaluation [9].

To date, only four cases of carboplatin replacement with cisplatin have been published. In all but one patient, replacement therapy was successful [4-6]. The only patient who experienced further hypersensitivity had not previously been studied with an intradermal skin test for cisplatin and was known to be allergic to Co-Amoxiclav and talc [10].

In our opinion replacement of carboplatin with cisplatin can be considered if: (i) an intradermal skin test to cisplatin is negative and (ii) cisplatin is equivalent to carboplatin for the treatment of the specific neoplasm, as in ovarian or serous papillary extra-ovarian peritoneal carcinoma.

For patients with a positive skin test also for cisplatin, a desensitization protocol can be proposed.

Further evaluations are warranted in order to establish the best treatment for patients with hypersensitivity reactions to carboplatin.

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Address reprint requests to:
G. PORZIO, MD
Dipartimento di Medicina Sperimentale
Università di L'Aquila
67100 L'Aquila (Italy)