

Very Fast Recovery of Acute Disseminated Intravascular Coagulation with Abiraterone Acetate in a Patient with Bone Metastases from Castrate-Resistant Prostate Cancer

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Key Words

Abiraterone acetate · Bone metastases · Castrate-resistant prostate cancer · Disseminated intravascular coagulation

Abstract

Disseminated intravascular coagulation (DIC) is a rare, potentially life-threatening complication of advanced prostate carcinoma. We report the successful treatment with abiraterone acetate of acute DIC related to a progressive bone metastatic disease in a chemotherapy-naïve patient with castrate-resistant prostate cancer.

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Introduction

Disseminated intravascular coagulation (DIC) is a rare, but well-known complication of advanced prostate carcinoma. Usually, the activation of the hemostatic system is minimal since negative feedback mechanisms are able to limit the process. In a few patients, however, acute DIC with excessive fibrinolysis occurs and represents a life-threatening condition [1, 2]. We report on the successful treatment of acute DIC related to a progressive metastatic disease in a castrate-resistant prostate cancer (CRPC) patient using abiraterone acetate (AA).

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Case Report

In 2001, a 58-year-old patient was primarily treated with radical prostatectomy for a pT3b (seminal vesicle invasion), pN0, M0 Gleason score of 9 (4 + 5) prostate adenocarcinoma. Because of positive radical margins, adjuvant, postoperative radiotherapy on the prostate bed was performed. Intermittent androgen deprivation with a luteinizing hormone-releasing hormone analogue was started in 2003 for rising serum prostate specific antigen (PSA) levels. In 2009, bicalutamide was added because of a castrate-resistant disease without any detectable metastases. Asymptomatic bone metastases occurred in 2012. Zoledronic acid was administered and the patient was thereafter included in a clinical trial assessing the efficacy of a monoclonal antibody targeting the α v subunit of human integrins. Seventeen months later, i.e. in September 2013, the disease evolved with new bone lesions and the appearance of retroperitoneal and mediastinal lymph nodes along with lung metastases. At the follow-up consultation, the patient presented with spontaneous cutaneous petechiae. PSA increased to 485 ng/ml. Platelet count was 29,000/ml (normal range: 150,000–300,000/ml), hemoglobin 10.8 g/dl (normal range: 12–14 g/dl), fibrinogen 0.9 g/l (normal range: 2–4 g/l), prothrombin time 69%, and a positive D-dimer test at 7,909 ng/ml (normal value: <200). The patient started AA (1 g/day in combination with prednisone 10 mg/day). On day 7, platelet count increased to 107,000/ml, fibrinogen rose to 2.8 g/l and coagulation blood tests normalized while PSA decreased to 190 ng/ml. Nadir PSA reached 6.4 ng/ml after 4 months of AA. At the 8-month follow-up and after AA treatment, the patient had a good performance status with normal hematological parameters, but his PSA had risen to 11 ng/ml.

Discussion

The cornerstone of DIC management is the treatment of the underlying condition. Until recently, few effective therapeutic options were available in CRPC, including hormonal manipulations, radiopharmaceutical treatments and chemotherapy. Third-line hormone treatments with estrogens such as diethylstilbestrol or ketoconazole have been shown to be helpful in some cases [3, 4]. Despite the report of a successful use of samarium 153 [5], radio-pharmaceutical treatments should be used with caution since a death related to the development of acute DIC following administration of strontium 89 has also been described [6]. Mitoxantrone chemotherapy has been reported to be effective, but the normalization of blood tests required at least 1 week [7]. The most convincing results were achieved with docetaxel-based chemotherapy [8, 9].

The recent development of new active agents increasing the overall survival of patients offers the opportunity for a better management of DIC occurring in CRPC patients. AA irreversibly inhibits both the hydroxylase and lyase activity of CYP17A, a single enzyme that plays a central role in the production of either adrenal or prostatic cancer cell androgen synthesis. Phase III trials comparing AA to placebo have shown a significant benefit on progression-free radiological survival in chemotherapy-naïve, asymptomatic or mildly symptomatic patients [10] as well as on overall survival in men after docetaxel treatment [11]. Such results led to the approval of AA by US and European regulatory agencies for patients with metastatic CRPC either before or after docetaxel chemotherapy. To the best of our knowledge, we are reporting the efficacy of AA in treating DIC in a CRPC patient for the first time. Of note, the patient had not received any previous chemotherapy, and the prompt

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recovery of clinical and biological symptoms related to DIC clearly suggests that tumor proliferation remained mainly driven by androgens.

Disclosure Statement

None of the authors declare any conflicts of interest.

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