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Case Report
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Gemcitabine and Hemolytic Uremic Syndrome: a Case Report

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Abstract

We are reporting the case of a 61 year old male patient with a medical history of pancreatic cancer on chemotherapy presenting a uremic hemolytic syndrome after the administration of gemcitabine. The renal function progressively worsened during his stay in spite of general measures and steroids, leading to the death at day 12 of admission.

Keywords: Hemolytic uremic syndrome; Gemcitabine; Renal failure

Case Report

A 61 year old man was admitted to the hospital due to low hemoglobin levels and altered renal function found on a follow up test. He was on the 8 cycle of chemotherapy and had received gemcitabine two weeks prior to hospitalization. He did not report any fevers, diarrhea or weight loss. He is a nonsmoker and his family history is of no interest. On presentation, the patient was mildly tachycardic (heart rate 95 beats/min) with a blood pressure reading of 100/70 mmHg, but he was otherwise stable. Heart auscultation was normal and lung sounds were clear. He had no axillary, cervical or inguinal adenopathy. Abdominal examination was negative with no tenderness or mass. The rest of the physical exam was irrelevant. Laboratory tests a progressive macrocytic anemia was noted, with a drop in hemoglobin level from 12.1 g/dL to 7.1 g/dL (normal 13 to 18 g/dL). The reticulocyte count was at112 giga/L. The leukocyte count was normal but platelets were slightly diminished at 147 giga/L (normal range from 150 to 400 giga/L). Haptoglobin was inferior to 0.04 g/ (normal range from 0.4 to 2.68) and 2% of schistocytes were found on peripheral smear. Coombs test came back negative. Metabolic panel findings showed acute renal failure (creatinine raised up to 181 ummol/L and glomerular filtration dropped from 98 mL/min to 34 mL/min). Proteinuria raised from 2.93 to 3.25 g/L. Liver function tests were within the normal range but for a LDH at 539 UI/L and total bilirrubin (13.70 mmol/L). Workup for infection, including serology for hepatitis B and C, HIV, CMV and EBV returned negative. Folate and vitamin B12 levels were normal. The immunologic panel came back negative for antinuclear antibody titer and antineutrophil cytoplasmic antibodies. Protein electrophoresis showed marked hypoalbuminemia and hypogammaglobulinemia. Bone marrow examination was normal.

Discussion

Hemolytic uremic syndrome (UHS) is a clinical entity characterized by the presence of acute renal failure, thrombopenia and hemolytic anemia [1,2]. In this regard, increase levels of LDH are consistent not only with hemolysis but also with tissue ischemia. Other important markers of hemolysis include elevated bilirrubin, reticulocytes count and low levels of haptoglobin. The diagnosis will be made in the presence negative Coombs test and schistocytes. Thrombopenia could also be severe and it reflects their peripheral destruction and acute renal failure result from the formation of microthrombi in the vascular lumen of arterioles and glomeruli [3].

This entity has been related to some infectious diseases, autoimmune conditions like systemic lupus and sclerodermia and in the setting of some drugs intake. The incidence of UHS in the context of cancer or chemotherapy varies from 2,6 to 13% according to the literature [4]. Uremic hemolytic syndrome in the setting of gemcitabine is a very uncommon clinical situation and its incidence varies from 0,015 à 2,2% [5]. This syndrome may appear from some days to some months after the administration of the drug or even once it has been stopped. The cumulative dose is also of importance but not completed elucidated as well as the mechanisms leading to UHS. In the case presented, the symptoms appeared on cycle 8. UHS in patients receiving gemcitabine must be suspected in the presence of acute renal failure and hemolityc anemia but unfortunately the diagnosis is made late. In the case presented, renal failure developed after anemia that's why medullar toxicity was initially evoked. The developing of hypertension in patients receiving gemcitabine should be carefully evaluated as it may represent the first sign but it was not present in our case. There is no specific treatment for this clinical condition even though it is always recommended to discontinue the treatment. Antiplatelets drugs and steroids have been used but their effects controversial [6]. Transfusions are contraindicated [7]. Despite of the implementation of general treatment, steroids and converting enzyme inhibitors, renal failure progressed to anuria leading to the patient's death at day 12 of admission. As described in the literature, early mortality in mainly due to renal failure [8].

Conclusions

Hemolytic uremic syndrome in patients receiving gemcitabine is a rare condition and of high mortality. Diagnosis is always delay due to the rarety of the condition.

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