5-fluorouracil induced cardiotoxicity in a patient with metastatic colorectal cancer

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Colorectal cancer is the second most common cancer in the Croatian population[1]. Available treatment options include surgery, radiotherapy, and chemotherapy in combination with the monoclonal antibodies depending on tumor RAS/BRAF status while immunotherapy is the treatment of choice in microsatellite-instability-high colorectal cancer. 5-fluorouracil (5-FU) is the first-line chemotherapeutic drug and presents a foundation of FOLFOX, FOLFOXIRI and FOLFIRI chemotherapy regimens used in the treatment of colorectal cancer. However, 5-FU is the second most common chemotherapeutic drug associated with a cardiotoxicity after anthracyclines, which can manifest as chest pain, acute coronary syndrome, arrhythmia or sudden cardiac death[2].

Case report: 73-year-old female with a history of arterial hypertension was admitted due to abdominal pain. Computed tomography (CT) showed a wall thickening of the descending and sigmoid colon, left-sided hydronephrosis and hepatic metastases. She underwent sigmoidectomy and omentectomy with ureter reconstruction and pathohistological finding confirmed a diagnosis of the colorectal adenocarcinoma. Postoperative adjuvant systemic chemotherapy with a biweekly FOLFIRI was initiated. After administration of the first cycle, patient developed a chest pain without troponin elevation. Electrocardiogram showed inverted T wave in leads DIII, avR, V1, V3 and V4. Coronarography showed no significant coronary artery stenosis, moreover chest pain was probably caused by coronary vasospasm. Further chemotherapy with FOLFIRI was continued with a dose reduction of 5-FU by 25 %. Cetuximab has been included into the therapy since a patient was identified as RAS/BRAF wild-type. During an administration of the fifth cycle patient redeveloped chest pain. Electrocardiogram showed a new-onset atrial fibrillation which was reverted to a sinus rhythm by intravenous administration of amiodarone. After the cardioversion, patient remained asymptomatic. CT reevaluation assessed a regression of the hepatic metastases, but due to cardiotoxicity related to 5-FU, monotherapy with cetuximab was continued as the treatment option for patients who are not considered candidates for further chemotherapy[3]. Additionally, hepatic metastases were treated with a stereotactic ablative radiotherapy.

Conclusion: Cardiotoxicity as an adverse effect of the oncological treatment presents a great challenge in everyday clinical practice. Therefore, it is necessary to conduct further studies to clarify its pathophysiology and thereby improve its prevention and treatment.

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