Retrospective analysis of cardiovascular diseases in chemotherapies for advanced solid tumor patients in a single institution


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Aim/Background: Appropriate management of cardiovascular diseases (CVDs) in association with chemotherapy for solid tumors is important for performing safety chemotherapy. However, predicting the onset and progression of CVDs related with chemotherapy have not been well established.

Methods: We conducted retrospective analysis for advanced or recurrent solid tumor patients who were admitted in our hospital and received chemotherapies. Surveyed items were as follows; patients characteristics, chemotherapy regimens, adverse events, CVDs prior to chemotherapy, diagnosis and therapies for CVDs in association with chemotherapy.

Results: During the period from April 2006 to March 2012, 394 patients who were treated with chemotherapy for solid tumors were examined. Cardiac arrhythmia, left ventricular dysfunction (LVD), cardiac ischemia/infarction (IHD), hypertension (HT), hypotension, arterial thrombosis and venous thrombosis were seen in 23 (5.8%), 15 (3.8%), 2 (0.5%), 24 (6.1%), 5 (1.3%), 5 (1.3%), and 14 (3.5%) cases, respectively. HT (15.7%) and arterial or venous thrombosis (5.7%) were frequent in patients who received bevacizumab-containing chemotherapy. Four cases with left ventricular dysfunction experienced decrease of ejection fraction (EF) and early filling/atrial filling (E/A) in chemotherapy, and the decrease of E/A tended to be seen before that of EF. Ninety (62.1%) among 146 cases whose D-dimers (DD) were measured prior to chemotherapy showed the elevation of DD, and the further increase of DD was seen when venous thrombosis occurred. Relative risks of the disease progression of HT and IHD due to chemotherapy for past histories of them were 1.4 and 2.6, respectively.

Conclusions: The decrease of E/A and the increase of DD were suggested to be useful for early diagnosis of the respective onsets of LVD and venous thrombosis related with chemotherapy. Patients with previous HT or IHD have a high risk of the disease progression after the induction of chemotherapy. Accumulation of clinical studies about CVDs related with chemotherapy is needed for performing chemotherapy safely.

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