Report of a Case of Pericardial Mesothelioma with Liver Metastases Responding Well to Pemetrexed and Platinum-Based Chemotherapy

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Abstract: Pericardial mesothelioma remains a disease with a bleak prognosis. We report the case of a patient with metastases to liver and good response to pemetrexed and carboplatin-based combination chemotherapy and consequent prolonged progression-free survival.

Key Words: Pericardial mesothelioma, Pemetrexed, Carboplatin, SIADH, Calretinin, Liver (hepatic), Lung (pulmonary) metastases.

BACKGROUND

Pericardial mesothelioma is a rare tumor with devastating consequences. Promising data of pemetrexed and platinum combination usage emerged in phase III trials (in terms of median survival, vis-à-vis gemcitabine and platinum) in pleural mesothelioma, despite an overall poor prognosis.1 An anecdote of efficacy of the pemetrexed-platinum combination in primary peritoneal mesothelioma also has been reported.2

CASE REPORT

A 45 year-old nondiabetic man presented to us in December of 2005 with history of illness with the symptoms of non-productive cough and breathlessness and treatment thereof for the previous year. Before presenting to us, the patient had been evaluated at another institute for the presumptive diagnosis of pulmonary tuberculosis and had received anti-tuberculosis treatment for approximately 9 months. After the anti-tuberculosis therapy, the patient was re-evaluated at a heart institute for the increasing severity of symptoms. Two-dimensional echocardiography suggested a pericardial mass. Cardiomegaly and bilateral pleural effusions (right more than left) were documented on chest roentgenogram. Computed tomographic scan of the chest revealed pericardial mass. He underwent partial excision of the pericardial mass at the same tertiary cardiac center. The histopathologic examination of the pericardial mass was confirmatory of diffuse malignant pericardial mesothelioma.

The patient was referred to our center for further treatment. Clinical examination revealed tachycardia and tachypnea. There was no evidence of pulsus paradoxus or cardiac tamponade. Occasional crackles in the chest and lack of organomegaly or tenderness in the abdomen were documented. Cardiac echo-Doppler study did not reveal tamponade. A monophasic (epithelial) malignant mesothelioma was confirmed, and on immunohistochemistry, positivity for calretinin, CK, and Vimentin and negativity for CD 15, CEA, and TTF were demonstrated at this institute on review, and special tests were run on the slides. Postoperative computed tomographic scan of the chest and abdomen showed left pleural effusion residual mass in the pericardial cavity with pericardial effusion. We observed hypodense lesions of variable shapes and sizes, consistent with metastases in both lobes of the liver. The patient also had pleural effusion and nodularity in the lungs. He was started on pemetrexed and carboplatin-based chemotherapy in January 2006 for the metastatic disease. He received second cycle of chemotherapy 25 days after the first cycle. Approximately a month after the second cycle, the patient was admitted with symptoms of hyponatremia of Syndrome of Inappropriate AVP Secretion (SIADH). He received third cycle thereafter, and re-evaluation at the end of three cycles with chest and whole-abdomen computed tomography showed good partial regression (World Health Organization criteria) in the pericardial mass and left pleural effusion. The patient finished the sixth cycle of chemotherapy in June 2006. There was further shrinkage of the tumor amounting to very good partial response (PR) (Figures 1 and 2).

The patient was followed after chemotherapy, and was in an acceptable-to-good state of health with stable disease on last evaluation, approximately 26 months after symptom development and 6 months after the conclusion of chemotherapy, when this report was being written.

DISCUSSION

Malignant pericardial mesothelioma is a very rare tumor that accounts for 4% of all cardiac and pericardial tumors and 1% of all mesothelioma cases in the clinic.
Remote metastases from the primary pericardial mesothelioma are occasionally reported. The reported sites of metastasis are: mediastinal nodes, pleura, lung, brain, and liver. To date, two cases of pericardial mesothelioma metastasizing to the liver have been previously reported.\textsuperscript{3,4} The prognosis of pericardial mesothelioma is abysmal. Surgery remains the main treatment modality. Best supportive care alone and systemic chemotherapy with palliative intent are accepted approaches for those who are not candidates for surgery. The average life expectancy at diagnosis is 10 months and at 2-year survival is 14\%.\textsuperscript{5}

Gemcitabine-platinum, gemcitabine-platinum-vinorelbine, and vincristine-adriamycin-cyclophosphamide are some combinations that have yielded good response rates.\textsuperscript{6,7} Inspired by the promising action of pemetrexed and platinum combination in pleural mesothelioma,\textsuperscript{1} we started the patient on a combination regimen consisting of pemetrexed and carboplatin and received an excellent PR with subsequent ongoing progression-free survival of 12 months since the commencement of chemotherapy.

CONCLUSION

We report the case of a patient of pericardial mesothelioma metastatic to the liver who had a good response to pemetrexed and carboplatin-based combination chemotherapy, and consequent prolonged continuing survival at the time of the dispatch of this report.

REFERENCES