

## **A case of lymphocytic pleural effusion while taking Dasatinib for CML**

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**Objective:** To describe a case of TKI induced pleural effusion and spread awareness of this side effect for medication used to treat CLL

### **Introduction**

The second-generation tyrosine kinase inhibitor (TKI), dasatinib, is approved as initial treatment for chronic myeloid leukemia (CML) chronic phase (CP). Studies have shown that the incidence of dasatinib associated pleural effusion is approximately 20%. Dasatinib-associated pleural effusions are generally lymphocyte-predominant exudates which can also be seen in tuberculosis, malignancy, sarcoidosis and autoimmune disorders like SLE and Rheumatoid arthritis. Lymphocytic pleural effusion in a setting of dasatinib does not warrant an extensive work up.

### **Case Report**

A 47 year-old lady with a 26 month history of CML-CP presented due to a one week history of sudden progressive dyspnea without cough. She started Dasatinib 100 mg PO daily with hydroxyurea at the time of her diagnosis with good response. Her medical history is otherwise unremarkable. Three months prior, the patient underwent bone biopsy demonstrating remission of CML and low white blood cell count. Examination was remarkable for bilateral lower lung rales. Chest x-ray revealed bilateral pleural effusions, confirmed by CT. Echocardiogram showed normal systolic function with an ejection fraction of 60-65%. Thoracentesis was performed and drained 1100 mL of clotted cloudy tan fluid from the right lung. The following day left sided thoracentesis drained 1050 mL. Results of the pleural fluid showed no evidence of malignancy and numerous lymphocytes. Dasatinib was held and the patient was discharged to follow up with her oncologist. At the follow up visit, she was switched to Bosutinib 400 mg PO daily.

### **Discussion**

Dasatinib-induced lymphocyte predominant pleural effusion is relatively uncommon but a knowledge of this side effect could help us to stop at some time after negative basic investigations. Grade 3-4 pleural effusions are associated with increased dosages, severity of disease, and chronic phase. This adverse effect is not fully understood at this

time. Several mechanisms are hypothesized to explain drug-induced effusions. Proposed explanations include hypersensitivity reaction, elevated free radical production, direct toxic effects, antitoxin defense suppression, inhibition of kinases and platelet-derived growth factor receptor- $\beta$ , and inflammation from chemical injury. Generally, symptomatic patients are conservatively managed with holding of the medication. Physicians should be aware of this side effect of Dasatinib and translate this knowledge into reducing unnecessary testing for other causes of pleural effusion in such patients. It is reasonable to switch to a different kinase inhibitor with scheduled follow up for resolution of the pleural effusion.

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