A Case of Tumor Lysis Syndrome in Breast Cancer

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Introduction

Tumor lysis syndrome is the most common oncologic emergency in hematologic malignancies, including aggressive lymphomas, but is rarely described in solid tumors. It is characterized by hyperuricemia, hyperkalemia, hyperphosphatemia and hypocalcemia leading to renal failure, arrhythmias and even death. We report a case of tumor lysis syndrome in a woman with metastatic breast cancer.

Case Presentation

KF was initially diagnosed in 2004 with stage 1 ER/PR negative and HER-2/neu negative left-sided breast cancer. She was treated with lumpectomy, sentinel lymph node biopsy, adjuvant chemotherapy and radiation.

She was diagnosed with a second left breast cancer in March 2010, which was triple negative and had a Ki-67 index of 90%. She underwent bilateral mastectomies in May 2010. Imaging did not reveal any metastases.

The patient deferred adjuvant chemotherapy until October 2010, when she had palpable axillary adenopathy, confirmed by imaging. She completed dose-dense doxorubicin, cyclophosphamide and paclitaxel in February 2011, with a significant clinical response, and went on to axillary lymph node dissection in March 2011.

By April 2011, she complained of increasing abdominal and back pain. CT scans on 4/13/11 showed new metastases to her liver and bones with periporal and retroperitoneal lymphadenopathy. She was admitted on 4/20/11 for abdominal pain, attributed to metastatic disease. Chemotherapy with carboplatin and gemcitabine was initiated on 4/21/11.

On HD#2, one day following initiation of chemotherapy, patient had worsening renal function, initially presumed pre-renal. She was given aggressive fluid resuscitation. On HD#3, she became tachypneic and altered and transferred to the ICU. A diagnosis of tumor lysis syndrome was made, based on the labs above, including corrected anion gap of 17, LDH 2239, lactic acid 2, BUN 73. Rasburicase and allopurinol were started. She did not require dialysis. On HD#6, she had improvement in her symptoms and electrolytes. She was discharged home on HD #13.

Labs and Imaging

<table>
<thead>
<tr>
<th>Hospital Day 3</th>
<th>Hospital Day 6 (post-treatment)</th>
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<tbody>
<tr>
<td>Calcium</td>
<td>6.2</td>
</tr>
<tr>
<td>Potassium</td>
<td>5.4</td>
</tr>
<tr>
<td>Phosphorous</td>
<td>9.9</td>
</tr>
<tr>
<td>Uric acid</td>
<td>15.0</td>
</tr>
<tr>
<td>Creatinine</td>
<td>2.0</td>
</tr>
</tbody>
</table>

Hospital course

CT abdomen - February 2011

CT abdomen - April 2011

Discussion

Tumor lysis is a well-characterized syndrome observed after chemotherapy in patients with acute leukemias and lymphomas, but rarely in solid tumors. Review of the literature shows several similar cases in patients with breast cancer, lung cancer and disseminated seminoma undergoing chemotherapy. Common risk factors include extensive bulky disease including hepatic metastases and rapid growth.

While these case reports indicate that tumor lysis can occur in solid tumors, it is still relatively rare. In those patients with large tumor burdens and rapidly progressive disease, consideration should be made on monitoring for tumor lysis while these patients undergo chemotherapy in order to prevent the effects of renal failure and metabolic disturbances. This includes regular measurements of renal function, electrolytes, uric acid and lactate dehydrogenase.

Conclusion

While tumor lysis in solid tumors is rare, monitoring for tumor lysis should be considered in patients undergoing chemotherapy with extensive, rapidly progressive disease.

References


