Cyclosporine Induced Posterior Reversible Encephalopathy Syndrome Post-Allogeneic Stem Cell Transplantation with Review of Literature

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Case Report:
A 34-year-old female a case of Chronic Myeloid Leukemia with T315I mutation exposed to 3 lines of TKI [Imatinib, Dasatinib & Nilotinib] underwent allogeneic stem cell transplantation with 5/6 matched sibling donor. Prior to transplant she was in accelerated phase with BCR-ABL of 12.2 % [IS]. The conditioning regimen used was Cy-TBI and post-transplant immunosuppression with methotrexate, cyclosporine and mycofenolate mofetil. She engrafted on D +22 but on D +25 developed mild hypertension [150/100mmHg] with refractory seizures and transient right lower limb weakness. Possibilities of metabolic encephalopathy, cerebral hemorrhage and drug-induced seizures were considered. The metabolic parameters were within normal limits. Seizure stopped immediately after stopping cyclosporine and controlling the blood pressure. Her Magnetic Resonance Imaging [MRI] of the brain showed T2 white matter hyper-intensity lesions in bilateral occipital lobe, parietal lobe and centrum semiovale with no structural lesion suggestive of posterior reversible encephalopathy syndrome [PRES]. Cyclosporine was switched to Tacrolimus that was gradually tapered and stopped at 1-year post transplant. Patient is well and is 1 year and 6 months post allogeneic stem cell transplant with molecularly undetectable BCR-ABL.

Review of Literature:
Cyclosporine is an immunosuppressive drug used in the prevention of graft rejection and graft versus host disease. The most common neurological toxicity is tremors and PRES is an unusual toxicity of cyclosporine. There are only 4 case reports of Cyclosporine induced PRES in the post allogeneic stem cell transplant setting. PRES is caused when blood pressure exceeds auto-regulatory capacity of brain vasculature. The presenting feature includes headache, confusion, seizures, and altered mental function. PRES has been associated with steroids [1], cyclosporine [2], tacrolimus [3], cyclophosphamide [4], pazopanib, bevazuzumab etc. The most common radiological sign is the white matter changes in the parieto-occipital region with predominant subcortical involvement [5]. The differential diagnosis includes intracranial hemorrhage, posterior circulation stroke and metabolic encephalopathy [5]. The prognosis is good as PRES is reversible except in cases of hemorrhagic PRES [6]. The management includes avoided the offending agent, normalizing the blood pressure and appropriate anticonvulsants [7].

<table>
<thead>
<tr>
<th>SL. No</th>
<th>Author</th>
<th>Journal</th>
<th>Year</th>
<th>Number of Cases</th>
<th>Diagnosis</th>
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<tr>
<td>1</td>
<td>Noe A et al.</td>
<td>Italian Journal of Paediatrics</td>
<td>2010</td>
<td>6</td>
<td>Haematopoietic Disease</td>
</tr>
<tr>
<td>2</td>
<td>Lai CC et al.</td>
<td>European Journal of Paediatrics</td>
<td>2008</td>
<td>1</td>
<td>Langerhan Cell Histiocytosis</td>
</tr>
</tbody>
</table>

Table 1: Case Reports of Cyclosporine Induced PRES Post Stem Cell Transplant
References:


