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Sudden Onset Severe Headache in a Patient of Aplastic Anaemia Following Bone Marrow Transplantation: A Case Report

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Abstract: ***10 years old boy from Northern India, diagnosed as a case of apastic anaemia diagnosed since 4 months was admitted to Indraprastha Apollo hospitals, New Delhi. After a period of chemotherapy and anti-thymocyte globulin, allogenic bone marrow transplantation was done. Just after end of the procedure, he developed headache which became severe after 15 mins post procedure and unresponsive to analgesics. Blood pressure was found to be high. MRI brain showed hyperintensity in bilateral parieto-occipital temporal region. It was diagnosed as posterior reversible encephalopathy syndrome (PRES). Next day of the diagnosis, patient developed seizure which was controlled. Hypertension was managed. Cyclosporin was stopped and mycophenolate mofetil was started. Patient improved symptomatically with prompt management.***

Keywords: Aplastic, blood pressure, PRES, cyclosporine

1. Introduction

Aplastic anaemia is a disorder of the bone marrow which fails to produce hematopoietic cells and results pancytopenia[1]. Bone marrow transplantation is the treatment of choice for young patients having a matched sibling donor. Immunosuppression is also an effective form of therapy[2]. Posterior reversible encephalopathy syndrome is a neurotoxic state in which the posterior circulation of brain is unable to autoregulate as a result of acute changes in blood pressure.

2. Case Report

10 years old boy from northern india had history of bruises and east fatigability for 4 months. Based on blood reports and bone marrow study, he was diagnosed to be a case of aplastic anaemia. He was admitted to Indraprastha Apollo hospitals, New Delhi for plan of bone marrow transplantation. He was given chemotherapy in form of fludarabine and cyclophosphamide along with anti-thymocyte globulin. After the end of this course, allogenic bone marrow transplantation was done successfully. Patient's vital parameters were monitored continuously before and during transplantation and were found to be stable. At the end of procedure, patient developed mild headache in occipital region. After 15 minutes post procedure, it became so severe that boy started shouting due to pain which did not respond to analgesic therapy. He had no blurring of vision, altered sensorium, seizure, focal neurological deficit at that time. He also had no cranial nerve palsy on neurological examination. Planter response in right side was extensor and left side was equivocal. Blood pressure was found to be higher side. MRI brain was done which showed flair hyperintensity in bilateral parieto-occipital temporal region and patchy area in bilateral frontal region. He was diagnosed to develop posterior reversible encephalopathy syndrome (PRES). Blood pressure was controlled by calcium channel blocker which was given regularly. Next day, patient had one episode of generalized tonic clonic seizure which was controlled by antiepileptics. Injection cyclosporine which was given as immunosuppressive medication for last 2 days was kept hold. Mycophenolate mofetil was started. Following early management, patient improved from next day symptomatically. Blood pressure was well controlled. General condition became stable.

3. Discussion

Patient with posterior reversible encephalopathy syndrome develops rapid onset of symptoms including headache, seizures, altered consciousness and visual disturbance[3,4].Our patient initially presented with headache only. Seizure developed after 24hours of onset of headache. Triggers of such conditions are acute and also chronic hypertension, acute kidney injury and chronic kidney disease, eclampsia, sepsis and multi-organ failure, autoimmune disease, immunosuppressive drugs, illicit drugs like cocaine, allogenic bone marrow and organ transplantation[5] etc. Our patient had triggers like acute rise of blood pressure, cyclosporine therapy, allogenic bone marrow transplantation. That is why cyclosporine was changed to mycophenolate mofetil for this patient. Patient should be managed very early. Otherwise neurological complications in form of permanent focal neurological deficit may occur.
Mohammad A. Hossain et al[6] reported a case of posterior reversible encephalopathy syndrome in a patient with chronic myeloid leukemia who received allogenic bone marrow transplantation and immunosuppressive drug similar to our patient. In such group of patients, vasculopathy is commonly identified and most studies have demonstrated reduced brain perfusion in regions similar to our patients[7]. Chemotherapy and immunosuppressive drugs induce this syndrome specially cancer patients. It was found in 16% cancer patients following allogeneic stem cell transplantation in Samuel Singer et al study[8]. So, allogenic bone marrow transplant itself is a risk factor for development of this syndrome.

4. Conclusion

If a patient has symptom of headache and acute rise of blood pressure along with the risk factors, posterior reversible encephalopathy syndrome should always to be thought as a high possibility. A prompt diagnosis and early initiation of treatment are very crucial to improve symptoms and to prevent neurological complications like focal neurological deficit.

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