CORRESPONDENCE

Thrombocytopenia in Infants: CMV-Related ITP or CMV-Related Thrombocytopenia?

Fatih Isleyen¹ · Mehmet Tekin¹ · Capan Konca¹

Received: 6 January 2018 / Accepted: 3 March 2018 / Published online: 6 March 2018
© Indian Society of Hematology and Blood Transfusion 2018

To the Editor,

Platelets are blood elements which take part in the first phase of hemostasis. Etiology of thrombocytopenia depends on deficient proliferation, distribution disorder or excess degradation. Excess degradation appears as idiopathic thrombocytopenic purpura (ITP) and viral infections [1]. While CMV-related hematologic problems are frequently seen in newborns and immune-compromised patients, they are rare in normal subjects [2]. While patients who developed thrombocytopenia are reported in literature, numbers of pediatric cases are small [3–5]. In this paper, we presented three infant cases that were considered to have ITP in the initial assessment, who were detected to have CMV and responded to IVIG treatment.

Case 1; An 11-months-old boy was admitted due to rash on the legs. The rash was started a day ago. Platelet count was $18.700/\text{mm}^3$. Peripheral blood smear examination was normal with regard to red blood cell (RBC) and WBC count; there were 1–2 platelets in every field, they were large and single. CMV IgM was found positive in viral panel. Because of typical findings of ITP, bone marrow aspiration was not performed [1]. Single dose of IVIG was administered in the dose of 1 g/kg. We did not administer the ganciclovir. The patient was discharged as platelet count was $229.000/\text{mm}^3$.

Case 2; A 5 months old boy was admitted due to rash on the body and the legs. The rash was started a day ago. Platelet count was $14.700/\text{mm}^3$. Peripheral blood smear

was consistent with ITP. CMV IgM was found positive. Bone marrow aspiration was not performed. Single dose of IVIG was administered. Ganciclovir treatment was not started. The patient was discharged as platelet count was $172.000/\text{mm}^3$.

Case 3; A 2.5 months old girl was admitted due to rash on the arms. Her rash was started a day ago. She had the history of hospitalization in newborn intensive care unit due to meconium aspiration syndrome. Platelet counts of parents were within normal ranges. Platelet count was $9.314/\text{mm}^3$. Peripheral blood smear was consistent with ITP. CMV IgM was found positive. Bone marrow aspiration was not performed. Single dose of IVIG was administered. Ganciclovir treatment was not started. The patient was discharged as platelet count was $313.000/\text{mm}^3$. Platelet count was found as $69.000/\text{mm}^3$ on her control 1 week after discharge and she was referred to Pediatric Hematology Department. Informed consent was obtained from the families of all three cases.

While acquired CMV infection may lead to severe clinical conditions like encephalitis, pneumonia, hepatitis and graft rejection in immune-compromised patients, it is usually asymptomatic in immune-competent individuals or goes with a nonspecific viral infection or mononucleosis-like syndrome [2]. It has been reported in a small number of studies that CMV-related thrombocytopenia may present with severe refractory ITP and it is difficult to discriminate this from typical ITP in immune-competent children. They suggested that CMV infection should be examined before making a diagnosis of ITP [4, 5]. We also detected CMV in three patients with thrombocytopenia who diagnosed with ITP. In all of these studies, it was reported that the cases were refractory to IVIG treatment and were recovered by ganciclovir treatment. In contrast to these studies, we had complete response to IVIG treatment in our three cases;

✉ Mehmet Tekin
drmehmetekin@hotmail.com

¹ Department of Pediatrics, School of Medicine, Adiyaman University, Kahta Street, 02000 Adiyaman, Turkey

Table 1 Comparison of our cases with literature

References	Number of patients	Median age	Fever	Organomegaly	Raised transaminases	IVIG or steroid use	Ganciclovir use
Sheng Yu et al. [4]	25	3 months	2 cases	6 cases	15 cases	22 cases	20 cases
DiMaggio et al. [5]	2	6 years	1 case	Not	2 cases	2 cases	2 cases
Recent case report	3	6 months	Not	Not	Not	3 cases	Not

only in one patient thrombocytopenia was relapsed 1 week later. When we looked closely, we saw that in the cases of these studies had acute signs of infection (fever and/or raised transaminase) at the time of thrombocytopenia in contrast to our patients herein described (Table 1).

In conclusion, differentiation between acute CMV-related thrombocytopenia and CMV-related ITP secondary to a recent but not active CMV infection would be useful for making a treatment plan.

Compliance with Ethical Standards

Conflict of interest All authors declare that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants or animals performed by any of the authors.

Informed Consent Informed consent was obtained from all individual participants included in the study.

References

1. Neunert C, Lim W, Crowther M, Cohen A, Solberg L Jr, Crowther MA (2011) The American Society of Hematology 2011 evidence-based practice guideline for immune thrombocytopenia. *Blood* 117:4190–4207
2. Plosa EJ, Esbenschade JC, Fuller MP, Weitkamp JH (2012) Cytomegalovirus infection. *Pediatr Rev* 33:156–163
3. Shimanovsky A, Patel D, Wasser J (2016) Refractory immune thrombocytopenic purpura and cytomegalovirus infection: a call for a change in the current guidelines. *Mediterr J Hematol Infect Dis* 8:2016010
4. Sheng Yu Z, Tang LF, Zou CC, Yan Zheng J, Zhao ZY (2008) Cytomegalovirus-associated idiopathic thrombocytopenic purpura in Chinese children. *Scand J Infect Dis* 40:922–927
5. DiMaggio D, Anderson A, Bussel JB (2009) Cytomegalovirus can make immune thrombocytopenic purpura refractory. *Br J Haematol* 146:104–112