The Hong Kong Society of Haematology
Annual Scientific Meeting 2024 Call for Abstracts

Title	Hepatitis-associated severe aplastic anemia: a case report
Authors	Chi-hang Kevin, Kwok[1];; Wai-man Vivien, Mak[2]; Sze-ki Sandy, Ho[2]; Wing-bing Lydia, Ho[2]; Wai-nga Grace, Lau[2]; Ka-lok Luke, Chan[2]; Kwok-kuen Harold, Lee[2]
Institutions	1 Department of Medicine, Yan Chai Hospital 2 Department of Medicine and Geriatrics, Princess Margaret Hospital

Abstract

Background

Hepatitis-associated aplastic anemia (HAAA) is a rare variant of aplastic anemia (AA). The onset of aplastic anemia is preceded by an episode of hepatitis. The bone marrow failure can be severe and it will be fatal if untreated. We presented a case of HAAA who were treated in our centre.

Case presentation

A 19-year-old man was first admitted due to acute hepatitis in February 2020. He presented as vomiting and diarrhea for one day. Alanine transaminase (ALT) was 823U/L and bilirubin was 99umol/L with normal alkaline phosphatase (ALP). Diagnostic tests, including hepatitis workup, autoimmune markers, were unable to determine the cause of hepatitis. He quickly recovered and his blood test results returned to normal.

In September 2020, he was admitted for two-week history of gum bleeding. He was found to have pancytopenia (white blood cells [WBC] 0.9 × 10^9/L; absolute neutrophil [ANC] 0.6 x10^9/L; haemoglobin [Hb] 7.4 g/dL; platelets 14 × 10^9/L). Bone marrow examination showed markedly hypocellular marrow and cytogenetic analysis did not reveal any abnormalities. Paroxysmal nocturnal hemoglobinuria (PNH) screening was unremarkable. A diagnosis of severe aplastic anemia (SAA) was reached, with hepatitis being the suspected cause.

In October 2020, the patient commenced treatment with horse anti-thymocyte globulin (ATG) plus cyclosporine, and oral eltrombopag at a daily dose of 75 mg. Our patient has shown good treatment response and his blood count has has been normalized since October 2021. In his latest follow-up visit in February 2024, he showed no signs of bleeding and findings of his blood test were normal (WBC 6.0 × 10^9/L; ANC 3.8x 10^9/L; Hb 13.8g/dL; platelets 238 × 10^9/L). There was no treatment-related adverse events observed during the entire course of treatment.

Discussion

Hepatitis-associated aplastic anemia (HAAA) is a rare but severe illness that usually occurs in 2-5% of newly diagnosed cases of acquired aplastic anemia.[1] It is predominantly seen in younger males, like in our patient. Severe aplastic anemia usually develops 2–3 months after acute hepatitis attack in patients with HAAA[1]. However, our patient developed HAAA seven months after the hepatitis episode. Most cases of HAAA are seronegative for known hepatitis viruses, including hepatitis A, B, C and G, like in our patient.[2] Treatment of HAAA is similar to SAA. The haematopoietic stem cell transplantation (HSCT) being the front-line treatment for young and adult SAA patients.[3-4] However, in situations where HLA-matched sibling donors are lacking, as in our patient, immunosuppressive therapy using a combination of horse ATG and cyclosporine is recommended.[4] Existing data have shown that around 60% of SAA patients respond to this standard immunosuppressive therapy.[2] Clinical outcomes of SAA has been improved after addition of eltrombopag SAA patients.[5] Our patient responded well to ATG/cyclosporine A/eltrombopag treatment.

Conclusion

HAAA is well known immune-mediated variant of AA. We have to be vigilant to hepatitis patients that develop symptoms and signs of pancytopenia and perform further investigations for early diagnosis of potential AA.

References:

1. Gonzalez-Casas R, Garcia-Buey L, Jones E, Gisbert J, Moreno-Otero R. Systematic review: hepatitis-associated aplastic anaemia—a syndrome associated with abnormal immunological function. Aliment Pharmacol Ther. 2009;30(5):436–43
2. Brown KE, Tisdale J, Barrett AJ, et al. Hepatitis-associated aplastic anemia. N Engl J Med 1997;336:1059–64
3. Alshaibani A, Dufour C, Risitano A, de Latour R, Aljurf M. Hepatitis-associated aplastic anemia. *Hematol Oncol Stem Cell Ther*.

Published online November 2020. doi:10.1016/j.hemonc.2020.10.001
4. Killick SB, Bown N, Cavenagh J, et al. Guidelines for the diagnosis and management of adult aplastic anaemia. *Br J Haematol*. 2016;172(2):187-207. doi:10.1111/bjh.13853
5. Peffault de Latour R, Kulasekararaj A, Iacobelli S, et al. Eltrombopag Added to Immunosuppression in Severe Aplastic Anemia. *N Engl J Med*. 2022;386(1):11-23. doi:10.1056/NEJMoa2109965