21 Post-Transfusion Purpura (PTP) n=1

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Definition:

Post-transfusion purpura is defined as thrombocytopenia arising 5-12 days following transfusion of cellular blood components (red cells or platelets) associated with the presence in the patient of antibodies directed against the HPA (human platelet antigen) systems.

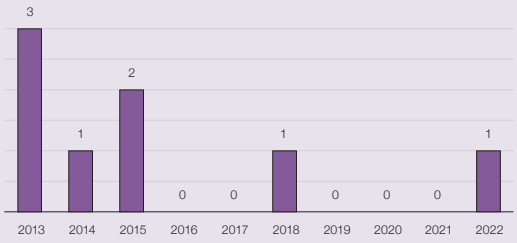
Abbreviations used in this chapter

Hb	Haemoglobin	**IVIg**	Intravenous immunoglobulin
HPA	Human platelet antigen	**PTP**	Post-transfusion purpura

Headline data 2022

Number of reports n=1
Deaths n=0
Major morbidity n=1

PTP reports by year



Demographic data

Male n=0
Female n=1
Adults n=1
Paediatric n=0

Blood component data

Red cells n=1
Platelets n=0
Plasma n=0
Multiple components n=0
Other n=0

Introduction

There was 1 case of post-transfusion purpura reported this year, the only case since 2018.

Deaths related to transfusion n=0

There were no deaths reported related to PTP in 2022.

Major morbidity n=1

Case 21.1: Post-transfusion purpura

A female patient in her 70s with cholangiocarcinoma was transfused two units of red cells as an outpatient prior to a liver biopsy. Seven days later she developed bruising and was found to have a

platelet count of 8. There were no features of sepsis, and no history of medication exposure, even transiently. She had further transfusions of red cells and platelets which produced poor increments. Platelet count gradually increased and had returned to normal 10 days after presentation. IVIg treatment was not given. Platelet antibodies were not detected either at presentation or on a repeat sample 6 weeks later. Tests revealed her platelet phenotype as HPA 5b5b and had potential to form anti-HPA 5a. In view of the possible diagnosis of PTP, transfusion was avoided, with erythropoietin used to support her Hb. No further transfusion support was needed before she died of her malignancy 6 months later.

The time course here was classical for PTP and there were no other identified reasons for the transient but severe fall in platelets. Despite the absence of antibodies, this was included as a PTP case. There was the potential to make an anti-HPA 5a antibody. In the context of neonatal thrombocytopenia, low-affinity antibodies which are not detectable by standard techniques have been described in cases where there is a strongly suspicious history, and it is plausible that a similar phenomenon has occurred here (Hawkins et al. 2019).

Learning point

- PTP may be suspected if the history is classical, but HPA antibodies are not detected, if the recipient HPA genotype suggests there is potential to form antibodies. Low affinity antibodies are postulated as a possible mechanism

Conclusion

Post-transfusion purpura has become extremely rare since the introduction of universal leucodepletion. There have been 8 cases reported to SHOT over the last 10 years including this case. It remains an important diagnosis for clinicians to be aware of, since the mainstay of management is transfusion avoidance, in addition to IVIg administration.

The diagnosis of PTP can be elusive given its substantial symptomatic overlap with other thrombocytopenic syndromes. Under-diagnosis and under-reporting make the true incidence of disease difficult to define (Hawkins et al. 2019). Staff need to be able to recognise these delayed immunological transfusion reactions so that appropriate actions can be taken. PTP has a temporal relationship to a transfusion and clinicians must recognise this and investigate appropriately. Although the low platelet counts are transient, major haemorrhage resulting from the thrombocytopenia can lead to patient death and major morbidity. Avoiding unnecessary transfusions, monitoring patients for delayed reactions and educating patients about these potential risks are vital (Narayan et al. 2021).

References

Hawkins J, Aster RH, Curtis BR. Post-Transfusion Purpura: Current Perspectives. *J Blood Med*. 2019;**10**:405-415. doi: 10.2147/JBM.S189176. PMID: 31849555; PMCID: PMC6910090.

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SHOT
Serious Hazards of Transfusion