NHS
Greater Glasgow and Clyde

CLINICAL GUIDELINE

Fresh Frozen Plasma Use

A guideline is intended to assist healthcare professionals in the choice of disease-specific treatments.

Clinical judgement should be exercised on the applicability of any guideline, influenced by individual patient characteristics. Clinicians should be mindful of the potential for harmful polypharmacy and increased susceptibility to adverse drug reactions in patients with multiple morbidities or frailty.

If, after discussion with the patient or carer, there are good reasons for not following a guideline, it is good practice to record these and communicate them to others involved in the care of the patient.

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Lead Author:	Richard Soutar
Approval Group:	Overarching Blood Transfusion Committee

Important Note:

The Intranet version of this document is the only version that is maintained.
Any printed copies should therefore be viewed as 'Uncontrolled' and as such, may not necessarily contain the latest updates and amendments.

NHS Greater Glasgow and Clyde

Guidelines for Use of Fresh Frozen Plasma (FFP)

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Authors	Dr Anne Morrison Consultant Haematologist. Review Jan 2018 by Dr Richard Soutar, Consultant Haematologist ,Dr Lynne Anderson, Consultant Anaesthetist, Chair of GG&C Overarching Transfusion Committee Review Jan 2021 by Dr Richard Soutar, Consultant Haematologist, Dr Lynne Anderson, Consultant Anaesthetist, Chair of GG&C Overarching Transfusion Committee, Dr.Dáire Quinn, ST4 in haematology. Review July 2024 by Dr Richard Soutar, Consultant Haematologist, Dr Lynne Anderson, Consultant Anaesthetist, Chair of GG&C Overarching Transfusion Committee.

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Indication for use of FFP

FFP is first line in:

- In Massive Haemorrhage:

- Four units of FFP can be thawed/released **immediately** the lab is aware of activation of the Major Haemorrhage alert **depending on local hospital policy**.
- Subsequent units should be guided by the results of lab tests or TEG/ ROTEM results where available.

GGC Medicines - Management of Major Haemorrhage

- Correction of coagulopathy in bleeding patient with multiple factor deficiency:

- FFP is used to treat clinical bleeding with lab evidence of coagulopathy defined as INR>1.4 and/ or APTT >1.4

Or

- If there is active bleeding with suspected coagulopathy & the lab results are not available e.g. in a patient known to have chronic liver disease

Most commonly encountered scenario are chronic liver disease, massive haemorrhage or DIC

- Correction of coagulopathy prior to invasive procedure:

This includes:

- Patients with coagulopathy (not Warfarin related) undergoing urgent procedure.

- Patients with coagulopathy who have planned procedure but with no reversible cause of coagulopathy.

Note:
In patients requiring or likely to require large volume transfusion but who do not fulfil the criteria of major haemorrhage, it is recommended to check clotting e.g. after transfusion of 4 units of CRC, particularly if there is ongoing need for transfusion to guide the need for clotting factor replacement.

FFP is 2nd line for:

- Patients with active bleeding who are anticoagulated with warfarin

Prothrombin Complex Concentrate being 1st line.

FFP is not indicated:

- Merely to reverse a prolonged PT/APPT in absence of bleeding.
- FFP should not routinely be given to reverse a prolonged PT/APPT in known liver disease in the absence of bleeding. Please refer to Liver Society and BSH guidelines.
- For reversal of heparin.
- As volume expander or protein supplement.
- In patients who are bleeding due to a surgical cause and who have normal clotting.
- For reversal of DOACs, please see separate guidance available on 'Staffnet'.

Guidelines for the laboratory staff issuing FFP

Four units of FFP per patient can be issued directly to the requesting doctor without discussion with the on call Haematologist in the following circumstances:

- Patient identified clinically as having "Massive Haemorrhage" irrespective of coagulation results.
- Patients with deranged clotting identified as PTr >1.3 and/or APPTr >1.5 with either

- History of active bleeding.
or
- Undergoing invasive procedure.

The clinician should be informed to contact the on call haematologist in the following circumstances:

- The requesting physician/surgeon is unwilling to wait for the coagulation results.
- Further FFP is requested.
- The fibrinogen is <1.0 gm/L or platelets <75.
- In event of "massive haemorrhage".
- History of warfarin or heparin use.

Dose

Each unit of FFP is on average 200-250ml.
The recommended dose is 15-20ml/kg.
This corresponds to 4 units of FFP for a 70kg adult.

Each unit of FFP should contain 0.70 iu/ml FVIII:C and < $5x10^6$ leucocytes per unit.

Products

Standard FFP is used for most patients.
Methylene blue treated FFP is no longer required in patients born on or after 1/1/1996*.
Solvent/detergent treated FFP is reserved for patients receiving plasma exchange for TTP and is organised by Apheresis Team.

Requesting FFP

FFP is available in the Hospital blood bank and should be requested on a blood transfusion request form. FFP is acellular and does not need to be irradiated or selected for CMV or Rhesus status. It takes about 30 minutes to thaw and this time should be taken in consideration when requesting FFP.

Administration

Rapid infusion may be appropriate when it is given to replace coagulation factors during major haemorrhage. There is anecdotal evidence that acute reactions may be more common with faster rates of administration. Some patients might need

premedication e.g. antihistamine particularly those with a past history of reacting to blood products.

References

Guidelines for use of fresh frozen plasma, cryoprecipitate and cryosupernatant British Journal of Haematology 2004; 126,11-28
Products and Procedures: Transfusion handbook, 4th edition, 2007.
www.transfusionguidelines.org
Department of Health: vCJD briefing.
British Society of Haematology Guidelines on the spectrum of fresh frozen plasma and cryoprecipitate products: their handling and use in various patient groups in the absence of major bleeding. Br J Haematol. 2018 Apr;181(1):54- 67).

Addendum

*The requirement to import plasma for treatment of individuals born on or after 1st of January 1996 or with TTP was introduced in 2004 in the UK, as part of variant Creuzfeldt Jacob Disease (vCJD) risk reduction measures. In September 2019, the Department of Health and Social Care withdrew this requirement and approved the use of UK-sourced plasma and pooled platelets for these individuals.
British Society of Haematology Guidelines on the spectrum of fresh frozen plasma and cryoprecipitate products: their handling and use in various patient groups in the absence of major bleeding. Br J Haematol. 2018 Apr;181(1):54- 67).
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