

## Solvent Detergent (SD) Plasma

This leaflet is an up-date of the FFP information leaflet issued in March 2000. We wish to remind you that there remains a risk of Transfusion Associated Circulatory Overload following the administration of Solvent Detergent Plasma.

### Points to note

- In 2001, the National Haemovigilance Office (NHO) received 16 (11%) reports of Transfusion Associated Circulatory Overload (TACO). Six (37.5%) of these were associated with Fresh Frozen Plasma (FFP).
- Occasional severe anaphylactoid reactions have been reported in association with FFP, especially with rapid infusion rates. During 2001 the NHO received 35 reports of severe acute anaphylactoid reactions, 11 (30.5%) of which were associated with FFP. Anaphylactic or anaphylactoid reactions due to hypersensitivity to infused plasma proteins or anti-IgA following the transfusion of Solvent Detergent Plasma (SDP) are rare (<1: 1000),<sup>1</sup> and are likely to be of the same order as for FFP.
- The dosage of SDP depends upon the clinical situation and underlying disorder, but 12-15 mls/Kg is a generally accepted starting dose. It is important to monitor the response both clinically and with measurement of prothrombin time (PT), partial thromboplastin time (PTT) or specific factor assays.<sup>2</sup>
- The statement on both the label and the product insert recommends that 'the thawed product should be used immediately'. This must be interpreted in such a way as to minimise the risk of volume overload. The infusion of SDP should begin as soon as clinical circumstances permit after thawing. British guidelines recommend that each unit of plasma be transfused to an uncompromised adult over 30 minutes.<sup>3</sup> Generally, the thawed product should be transfused within four hours of thawing. Coagulation factor replacement in the massively haemorrhaging patient may require faster infusion rates.
- The patient who is elderly, very small and/or cardiac or respiratory compromised deserves special mention. There is a significant risk of volume overload leading to respiratory distress with severe morbidity/mortality especially using rapid infusion rates. In the non-bleeding situation, transfusion rates for this group of patients should not exceed 2-4 mls/kg per hour.<sup>4</sup>
- Each unit of SDP contains a standard volume of 200mls, in contrast to a unit of FFP, which contains 220-300mls. This smaller volume **may** need to be considered when calculating doses.

### Table 1. Suggested times for infusion in the non-bleeding patient.

In general SDP can be considered as equivalent, volume for volume, to FFP. If a slower transfusion rate is needed, the plasma can be thawed in divided doses.

Patient Weight	Units Required	Rate of Transfusion per hr
20 kg	1 unit	40 mls – 80 mls
30 kg	2 units	60 mls – 120 mls
40 kg	3 units	80 mls – 160 mls
50 kg	3 units	100mls – 200 mls
60 kg	4 units	120mls – 240 mls

### Firm indications for giving plasma<sup>5</sup>:

Plasma therapy should only be given where there is a clear clinical indication and where the expected benefit outweighs the inherent risks. Firm indications for giving plasma include:

- The correction of haemostatic disorders where no other more suitable therapy exists or is available
  - Emergency warfarin reversal where prothrombin complex concentrates are unavailable (As in Table 2)
  - Haemostatic failure associated with major blood loss
  - Liver disease, either in the presence of haemorrhage, or prior to an elective procedure
  - Acute Disseminated Intravascular Coagulation
  - Replacement of single factor plasma deficiencies where no licensed virally-inactivated or recombinant single factor concentrate is available e.g. factor V deficiency (currently) and acetyl cholinesterase deficiency
- The treatment of choice in thrombotic thrombocytopenic purpura (TTP) in conjunction with plasma exchange

**SDP is only required for the reversal of over anticoagulation in the presence of major bleeding. Generally it should not be used in patients scheduled for elective invasive procedures as these situations are best managed using Vitamin K and withdrawal of Warfarin.**

**Table 2. Recommendations for management of bleeding and excessive anticoagulation<sup>6</sup>**

INR* 3 - 6 ( target INR 2.5) INR 4-6 ( target INR 3.5) no bleeding or minor bleeding	1. Reduce warfarin dose or stop 2. Restart warfarin when INR < 5.0
INR 6 - 8; no bleeding or minor bleeding	1. Stop warfarin 2. Restart when INR < 5.0
INR > 8.0, no bleeding or minor bleeding	1. Stop warfarin 2. Restart warfarin when INR < 5.0 3. If other risk factors for bleeding exist**, give 1-2.5 mg of vitamin K IV or orally
Life threatening bleeding	1. Stop warfarin 2. Give 5mg of vitamin K IV 3. Give prothrombin complex concentrate*** 25- 50 iu/kg or SDP 12-15 mls/kg

Notes: \*INR = International Normalised Ratio

\*\*Age of patient > 70 and/or Previous history of bleeding

\*\*\*Unlicensed product

### **Managing Anticoagulation in the Perioperative Period**

**Elective invasive procedure:** Stop anticoagulant for three days prior to surgery

**Emergency invasive procedure:** Where surgery cannot be postponed, reverse anticoagulant with low dose Vitamin K as above.<sup>6</sup>

In emergency situations, Vitamin K should be given IV, which will reduce the INR within 4 hours, with complete reversal to the therapeutic range within 24hours. In less urgent situations, it can be given orally. As Vitamin K tablets are only available as 10 mgs, the intravenous solution of Vitamin K can be given orally and is effective. Only 1mg is required to reduce the INR from >4.5 to a target of 2.0-3.0<sup>7</sup> within 24 hrs .<sup>6, 8, 9</sup>

### **SD Plasma is not indicated in treatment of:**

- Hypovolaemic shock
- Selected nutritional deficiencies
- Correction of immunodeficiency
- Replacement fluid in plasmapheresis with the exception of TTP

### **References**

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**For further information contact:  
National Haemovigilance Office at the NBC,  
James's St, Dublin 8.**