Immunoglobulin (Flebogamma DIF 5%) Intravenous for Adults

Who can administer

May be administered by registered competent doctor or nurse/midwife

Important information

- Please ensure you are using correct monograph- separate monographs for **both** Flebogamma DIF **5% and 10%** are available
- **Use 10% Flebogamma DIF** unless instructed by Dr V Tormey and supply of the 5% can be arranged by pharmacy
- See below re using adjusted weight for calculation of doses
- An **In-patient Authorisation form** **or** **Out-patient prescription form** MUST be completed prior to the first dose of immunoglobulin in GUH. Supply will ONLY be arranged when this form is completed correctly.
- **Round dose to nearest vial size** (ref 2)
- **Contraindicated** in individuals with known **class specific antibody to Immunoglobulin A**
- **Thromboembolism:** Use caution with IVIg in **obese patients** and in patients with **pre-existing risk factors for thrombotic events**. In patients at risk for thromboembolic adverse reactions, IVIg products should be administered at the **minimum rate of infusion and dose practicable**
- See overleaf for **monitoring** requirements
- This is a **blood product**, therefore batch and expiry information should be recorded in the patient's notes. This is facilitated by putting the dispensing label from each vial into the patient's notes.
- Licensed doses vary with the brand of immunoglobulin employed. Discuss with your consultant or pharmacy if further information required.
- **Glass bottle precautions** as follows:
- Precautions need to be taken during administration to prevent possible air embolism - particularly in central line administration. Bottles must be vented in one of two ways:
  - Directly by means of a filter needle into the bottle which goes through the rubber stopper and opens into the air,
  - or Direct air vent on the air inlet of the administration set, located between the drip chamber and piercing pin, it is covered with a bacterial retentive filter to reduce the chance of contamination

Available preparations

Flebogamma DIF Human normal immunoglobulin 5% 2.5g in 50ml

Flebogamma DIF Human normal immunoglobulin 5% 5g in 100ml

Flebogamma DIF Human normal immunoglobulin 5% 10g in 200ml

Flebogamma DIF Human normal immunoglobulin 5% 20g in 400ml

Reconstitution

Already in solution

Infusion fluids

Not required (product ready for infusion)

Methods of intravenous administration

Intermittent intravenous infusion (administer using an electronically controlled infusion device)

- First 30 minutes: 0.6 to 1.2ml/kg/hour
- If well tolerated, the rate may then be gradually increased to a maximum of 6ml/kg/hour for the remainder of the infusion. For example, if started at 0.6ml/kg/hour for first 30 minutes, then increase after 30 minutes to 1.2ml/kg/hour, then increase after a further 30 minutes to 2.4ml/kg/hour, and so on, to a maximum rate of 6ml/kg/hour
- If reaction occurs during infusion, see 'Further information' for guidance
- When prescribed as a daily dose for several days, the rate will need to be titrated again on each day. However, if it was well tolerated the previous day, the rate may be increased more quickly on subsequent days. (ref 1)
- If prescribed as a daily dose, and on day one it is first administered late in the day, on subsequent days the starting time for administration may be brought back to earlier in the day if required. Gradual titration of the rate will be needed on each day, as before.

Infusion rates for FLEBOGAMMA 5%- sample calculations. See above for exceptions to rate increases						
If a patient's weight falls between two values below, use the lower infusion rate- e.g. patient weight 59kg- use rates for 55kg rather than for 60kg						
Increase rate as per table below, every 30 minutes as tolerated - until the full dose has been administered Maintain low rate of infusion throughout if patient has acute renal disease, or thromboembolic disorders						
Weight (kg)	**First 30 minutes (ml/hour)**	**Second 30 minutes (ml/hour)**	**Third 30 minutes (ml/hour)**	**Fourth 30 minutes (ml/hour)**	**Fifth 30 minutes (ml/hour)**	**Maximum rate (ml/hour)**
	0.6ml/kg/hour	1.2ml/kg/hour	2.4ml/kg/hour	3.6ml/kg/hour	4.8ml/kg/hour	6ml/kg/hour
50	30	60	120	180	240	300
55	33	66	132	198	264	330
60	36	72	144	216	288	360
65	39	78	156	234	312	390
70	42	84	168	252	336	420
75	45	90	180	270	360	450
80	48	96	192	288	384	480
85	51	102	204	306	408	510
90	54	108	216	324	432	540
95	57	114	228	342	456	570
100	60	120	240	360	480	600
105	63	126	252	378	504	630
110	66	132	264	396	528	660
115	69	138	276	414	552	690
120	72	144	288	432	576	720
125	75	150	300	450	600	750
130	78	156	312	468	624	780
135	81	162	324	486	648	810
140	84	168	336	504	672	840

Dose in adults

Important points (ref 2)

- For patients with BMI 30kg/m^2 or more, or if actual weight >20% more than IBW, consider using adjusted body-weight dosing of immunoglobulin. See handy calculator here
- Using this adjusted weight dose may contribute to minimisation of side-effects and will also save significant quantities of immunoglobulin.
- **Round dose** to nearest whole vial size

Replacement therapy in primary immunodeficiency

- 0.4g to 0.8g/kg initially, followed by 0.2g to 0.8g/kg every three to four weeks thereafter, depending on the clinical response and on the IgG trough level.
- **Round dose** down to nearest vial size
- Desired trough levels (taken before the next infusion) are at least 6g/L
- Three to six months are required after initiation of therapy for equilibration to occur

Replacement therapy in secondary immunodeficiency

- 0.2g to 0.4g/kg every three to four weeks thereafter, depending on the clinical response
- **Round dose** down to nearest vial size
- IgG trough levels should be measured and assessed in conjunction with the incidence of infection. Dose should be adjusted as necessary to achieve optimal protection against infections, an increase may be necessary in patients with persisting infection; a dose decrease can be considered when the patient remains infection free.

Idiopathic thrombocytopenia (ITP)

- 0.4g/kg daily for two to five days
- Alternative regimen: 0.8g/kg to 1g/kg on day 1, which may be repeated once within three days if relapse occurs
- **Round dose** to nearest vial size, or adjust dose over the treatment course
- For example 0.4g/kg for 5 days for patient who weighs 65kg is 26g daily for up to 5 days - give 25g daily for four days, then give 30g on day 5

Guillain Barre syndrome

- 0.4g/kg daily for 5 days
- **Round dose** or adjust dose over the treatment course e.g. 0.4g/kg for 5 days for patient who weighs 65kg is 26g daily for up to 5 days - give 25g daily for four days, then give 30g on day 5

It is common practice for neurology patients to be prescribed enoxaparin 40mg od subcutaneously due to the increased risk of thromboembolism. Consider prescribing but check dose etc with Registrar first. See also under Important information re thromboembolism

See SPC for other indications

Monitoring

- Patients must b**e closely monitored** and carefully observed for any adverse reactions throughout the infusion period and for at least twenty minutes after administration
- Monitoring should be **extended to one hour** for immunoglobulin naive patients, those switched from another product, or when there has been a long interval since previous infusion.
- If adverse reactions occur, slow or stop the infusion - see under 'Further information'. Please also consult Medication Protocol: Management of Infusion Related patient reactions in nurse led infusion

settings in GUH -available on Q pulse (CLN-NM-0118)

Further information

- **Management of infusion related reactions:** depending on the severity of the reactions, the infusion rate may either be **slowed or stopped**
- Some cases of **acute renal failure** have been reported in patients receiving IVIG (particularly those containing sucrose as an excipient).
- Contains 50mg/ml **sorbitol** as an excipient. Should not be administered to patients with rare hereditary problems of **fructose** intolerance
- Adequate hydration prior to infusion of IVIG is essential, urinary output and creatinine must be monitored, and the concomitant use of loop diuretics should be avoided where possible.
- IVIG may interfere with responses to **live vaccines** - serological testing may be necessary- see SPC for details
- IgA content is less than or equal to 50 microgam per ml
- IgG content is at least 97%

Storage

Store below 25^{0}C

References

Flebogamma Dif 50mg/ml SPC 24/4/2017

(1) Communication with Dr Tormey, Immunologist, email March 2011

(2) Department of Health UK 2011 Clinical guidelines for the use of intravenous immunoglobulins 2nd edition

Therapeutic classification

Intravenous immunoglobulin