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# Immunoglobulin dosing considerations for pregnant patients with hypogammaglobulinaemia

Immunoglobulin (Ig) replacement therapy is the mainstay of treatment for patients with inborn errors of immunity (IEI). Treatment is generally lifelong in order to prevent infection, including during pregnancy. Immunoglobulin G (IgG) is the primary antibody transferred to the developing fetus during pregnancy via the placenta. This transfer is facilitated and regulated by the neonatal Fc receptor (FcRn), and gradually increases as the pregnancy progresses[1].

Plasma volume expands significantly during pregnancy to support the increased circulatory demands placed on the body. This volume increase is estimated to be around 30-50% by the third trimester[2] and results in an increase in the maternal IgG distribution space.

The combination of plasma volume expansion, weight gain during pregnancy and IgG transfer to the fetus mean that pregnant patients who receive immunoglobulin replacement therapy (either via the intravenous (IVIg) or subcutaneous (SCIg) route) may not be able to maintain appropriate trough IgG levels with their pre-pregnancy dose regimens.

There is a paucity of research on Ig dosing during pregnancy, but the published literature (which is predominantly in the form of case studies) demonstrate that pre-pregnancy dose regimens were unable to maintain adequate maternal IgG levels throughout pregnancy. Several authors[3-5] recommend flexible adjustments in the dose, frequency and route of administration of Ig therapy to maintain stable IgG trough levels as the pregnancy progresses.

Some points to consider when treating pregnant patients with Ig therapy:

- Regular monitoring of trough IgG levels may be useful to ensure adequate dosing throughout pregnancy, particularly if there is evidence of infection
- It may be necessary to increase the Ig dose or frequency of therapy throughout pregnancy to maintain adequate trough IgG levels
- Patients receiving SCIg may like to discuss placement of needles for infusion – patients who usually inject into the abdomen may be reluctant to do so during pregnancy
- Consider scheduling an IVIg infusion before the patient's anticipated due date to maximise the duration not requiring Ig therapy immediately postpartum
- Patients who do have their dose increased during pregnancy can likely have their dose reduced immediately following delivery. Further reductions may also be possible in the postpartum period with weight loss.

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