Neonatal haemochromatosis (NH)

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Condition for which IVIg has an established therapeutic role.

Specific Conditions	• Pregnant woman with previous fetal loss • Neonate with haemochromatosis
Indication for IVIg Use	• Pregnant women who have had a previous pregnancy affected by neonatal haemochromatosis • Neonate with neonatal haemochromatosis
Level of Evidence	Evidence of probable benefit – more research needed (Category 2a)
Description and Diagnostic Criteria	Neonatal haemochromatosis (NH) manifests in the fetus and newborn, and is characterised by abnormal accumulation of iron in the liver and extra-hepatic tissues. Affected neonates present with fulminant liver failure, usually in the context of a history of prematurity, intrauterine growth retardation and oligohydramnios. NH differs from most other causes of neonatal liver disease, other than congenital infections, in that the condition begins in utero and fulminant liver disease is manifested in the first few days of life. The aetiology and pathogenesis remains uncertain. The NH phenotype may be the outcome of numerous disease processes. There is also evidence, however, that NH is an alloimmune disorder. First, there is an approximate 80 percent likelihood of NH once a woman has an affected baby. Second, mothers can have affected babies with different fathers. It has not been described that fathers can have affected half-siblings with different mothers. **Symptoms and signs** Affected neonates present with signs of liver failure, including extreme cholestasis, hypoalbuminaemia, coagulopathy, ascites and hypoglycaemia. Diagnosis of neonatal haemochromatosis is made after other causes of neonatal liver failure have been ruled out. In addition to extensive iron deposition (siderosis), liver biopsy would show cirrhosis with diffuse fibrosis, bile duct proliferation, and giant cells. Siderosis is also present in other tissues and viscera (e.g. epithelial tissues and the heart), but not in reticuloendothelial cells. **Occurrence** NH is a rare disease but the rate of recurrence after the index case in a sibship is up to 80 percent. **Prognosis** About 20 percent survival with medical treatment.
Justification for Evidence Category	A trial compared the impact of intravenous immunoglobulin (IVIg) on pregnancy outcome of women whose most recent pregnancy had resulted in neonatal haemochromatosis (NH) with historical controls (randomly selected previously affected pregnancies). All 15 pregnancies resulted in live births. NH was diagnosed in 11, but responded to medical treatment. By contrast, there were two successful outcomes in controls (Biotext 2004). (Rand et al 2009) describes successful treatment of NH in neonates using exchange transfusion and IVIg.

Diagnosis Requirements	A diagnosis must be made by any medical officer.
Qualifying Criteria for IVIg Therapy	Pregnant women who have had a previous pregnancy affected by neonatal haemochromatosis • Pregnant woman with a previous pregnancy ending in delivery of a fetus shown to have had NH Neonate with neonatal haemochromatosis • A diagnosis of neonatal haemochromatosis confirmed in a neonate by findings of high iron on biopsy OR • A diagnosis of neonatal haemochromatosis confirmed in a neonate by MRI demonstration of iron overload
Review Criteria for Assessing the Effectiveness of IVIg Use	Pregnant women who have had a previous pregnancy affected by neonatal haemochromatosis **Review is not mandated for this indication however the following criteria may be useful in assessing the effectiveness of therapy.** • Pregnancy outcomes OR • Neonatal outcomes Neonate with neonatal haemochromatosis **Review is not mandated for this indication however the following criteria may be useful in assessing the effectiveness of therapy.** • Neonatal outcomes

Dose

Pregnant women who have had a previous pregnancy affected by neonatal haemochromatosis

- **Maintenance Dose** - 1g/kg (to a maximum body weight of 100 kg) weekly from the 18th week until the end of gestation

The aim should be to use the lowest dose possible that achieves the appropriate clinical outcome for each patient.

Refer to the current product information sheet for further information on dose, administration and contraindications.

Neonate with neonatal haemochromatosis

- **Maintenance Dose** - 1–2g/kg following exchange transfusion in the first 7 days and then up to 1g/kg weekly, as required.

The aim should be to use the lowest dose possible that achieves the appropriate clinical outcome for each patient.

Refer to the current product information sheet for further information on dose, administration and contraindications.

Bibliography

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