

# Antenatal interventions for fetomaternal alloimmune thrombocytopenia

NICE has developed the Cochrane Quality and Productivity (QP) topics to help the NHS identify practices which could be significantly reduced or stopped completely, releasing cash and/or resources without negatively affecting the quality of NHS care. Each topic has been derived from a Cochrane systematic review that has concluded that the evidence shows that the practice is harmful or ineffective and should not be used, or that there is insufficient evidence to support widespread use of the practice

### Summary

#### **NICE summary of review conclusions**

Evidence shows that the harms of treating fetomaternal alloimmune thrombocytopenia with dexamethasone alone, or in combination with intravenous immunoglobulin may outweigh the benefits.

Reducing or stopping antenatal administration of dexamethasone in fetomaternal alloimmune thrombocytopenia is likely to improve the quality of patient care and result in productivity savings by avoiding an unproven intervention with an unknown safety profile.

#### **The 'Implications for practice' section of the Cochrane review stated:**

“There is no evidence that, when added to intravenous immunoglobulin, antenatally administered dexamethasone improves platelet count at birth. Since dexamethasone has been reported as causing fetal oligohydramnios and this trial also reported significant effects on the mother, dexamethasone is not recommended for the antenatal treatment of fetomaternal alloimmune thrombocytopenia, especially since alternative corticosteroids are available.

Intravenous immunoglobulin or prednisone can be used as first line treatment for standard-risk fetomaternal alloimmune thrombocytopenia, where there was no peripartum haemorrhage in an affected sibling and the pre-treatment fetal platelet count (if performed) is  $> 20 \times 10^9/l$ . However, the optimal dose of both prednisone and IVIG has not been established.

Intravenous immunoglobulin in combination with prednisone is more effective in raising the fetal platelet count than IVIG alone in high-risk pregnancies, where the pre-treatment fetal platelet count is  $< 20 \times 10^9/l$  or the affected sibling sustained a peripartum intracranial haemorrhage. The optimal timing of administration and the dose of prednisone and intravenous immunoglobulin is unclear.”

### Details of Cochrane review

#### Cochrane review title

Antenatal interventions for fetomaternal alloimmune thrombocytopenia

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## Citation

[Rayment R, Brunskill SJ, Soothill PW, Roberts DJ, Bussell JB, Murphy MF. Antenatal interventions for fetomaternal alloimmune thrombocytopenia. Cochrane Database of Systematic Reviews 2011, Issue 5. Art. No.: CD004226. DOI: 10.1002/14651858.CD004226.pub3](#)

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## When the review content was assessed as up to date

9 March 2011

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## QIPP category

Medicines management

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Relevant codes	OPCS	ICD10	HRG
		P61.0	PB01Z, PB02Z. Not applicable prescribing cost.

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## Programme budget

Conditions of neonates

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## Evidence

### Relevance to the NHS

The Cochrane review included four small randomised controlled trials with a total of 206 participants. However, these studies did not provide sufficient evidence to determine the best treatment for fetomaternal alloimmune thrombocytopenia.

Three of the trials presented data for intravenous immunoglobulin plus a corticosteroid versus intravenous immunoglobulin alone. The corticosteroid used was prednisone in two trials and dexamethasone in one trial.

The trial that looked at dexamethasone reported an improvement in fetal platelet count after maternal treatment with both intravenous immunoglobulin and intravenous immunoglobulin plus dexamethasone. Additionally, the platelet count of treated fetuses at birth was increased by comparison with that of their siblings at birth.

However, the results from this trial and subsequent conclusions reached by the trial's authors should be read with caution. A number of important clinical outcomes were not reported by the trial authors: fetal death; incidence of intracranial haemorrhage; miscarriage as a result of fetal blood sampling; financial cost of treatment; adverse events; and acceptability of the treatment options to the mother. The sample size was small and hence had limited power to detect small but important differences especially in outcomes of survival, fetal loss and occurrence of intracranial haemorrhage.

For this trial, power calculations to determine study sample size were based on platelet count increments. It may not be possible to design appropriately powered studies for this population that would measure clinically relevant outcomes such as bleeding risk, since ethical constraints would clearly make endpoints of severe bleeding or mortality more difficult

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to justify. Perhaps alternative outcome measures should be developed based on improved understanding of the underlying mechanism of disease, or relying on non-invasive techniques.

The trial comparing intravenous immunoglobulin to long term administration of prednisone (0.5mg per kg per day) did not demonstrate any significant difference between these treatments for women with standard risk pregnancies. There was a substantial failure rate with both treatments.

The trial comparing combined therapy of intravenous immunoglobulin and prednisone in high risk pregnancies (a history of peripartum intracranial haemorrhage in an affected sibling or an initial fetal platelet count of less than  $20 \times 10^9/l$ ) suggested a superior response to intravenous immunoglobulin alone. Their results however, should also be interpreted with caution due to the low numbers of trial participants.

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## Relevant NICE guidance

[Antenatal care – routine care for the healthy pregnant woman \(NICE clinical guideline 62\)](#)

(Published: March 2008, expected review date: May 2014)

No specific recommendations were made on this intervention

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## Potential productivity savings

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### Estimate of current NHS use

No information is available on the level of current usage of dexamethasone for antenatal interventions for fetomaternal alloimmune thrombocytopenia. Incidence varies between 1 in 1000 and 1 in 1500 live births. There were 160 finished consultant episodes of transient neonatal thrombocytopenia in 2008–09

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### Level of productivity savings anticipated

The actual saving depends on the number of patients receiving the drug and the cost of the corticosteroid to be used as an alternative to dexamethasone. Based on the NHS Electronic Drug Tariff, a 2mg, 50 tablets pack of dexamethasone costs £6.48. A 5mg, 28 tablet packet of prednisolone costs £2.91.

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### Type of saving

Real cash savings for providers will be achieved if organisations stop using dexamethasone and if the alternative corticosteroids cost less

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### Any costs required to achieve the savings

No additional resources required

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## Potential impact on quality of NHS care

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### Impact on clinical quality

Clinical quality will be improved by reducing the use of unproven therapies

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## Impact on patient safety

Improved patient safety by reducing use of therapies with an unknown safety profile

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## Impact on patient and carer experience

Not anticipated to have any impact on patient and carer experience

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## Likely ease of implementation

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### Time taken to implement

Can be achieved quickly: 0–3 months

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### Healthcare sectors affected

Affects one department or team

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### Stakeholder support

Likely to achieve good buy-in from key influencers

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