**Is the Kleihauer test still relevant in the blood transfusion laboratory?**

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**Aim:** Is there still a need for Kleihauer testing post-delivery when 1500IU anti-D is being issued?

How many cases were there in 2018 at LTHT where the FMH was >12mls?

Is 1500IU still at a detectable level at delivery to provide adequate cover during the delivery?

**Background:** 2002 - Routine antenatal anti-D Ig prophylaxis (RAADP)
- 2017 – LTHT offered cell-free fetal DNA (cffDNA)
- Guidelines recommend a minimum 500IU anti-D for sensitising events and post delivery.
- LTHT (and other Trusts) issue 1500IU.
- 500IU anti-D covers a FMH of up to 4ml.
- 1500IU anti-D covers a FMH up to 12ml.

**Method:** List of cffDNA tests from 2018
- Inclusion criteria – G&S at delivery and anti-D 28/40
- List of ALL positive Kleihauers from 2018
- Following recorded:
  - date anti-D was issued
  - date sample taken
  - time difference between two dates
  - dates and dose of additional anti-D
  - antibody screen result
  - cord group result
  - Kleihauer result
  - Flow cytometry result (where applicable)

**Results 2018:**
- 2748 Kleihauer slides examined
- 34 (1.24%) cases were positive
- 26 cases - less than 4mls FMH
- 2 cases between 4 and 12mls
- 5 cases were unknown
- 1 case resulted in a FMH of 20mls which needed additional anti-D to the post-delivery dose.

0.036% of Kleihauers in 2018 required more than the standard dose of anti-D.

To ensure that 2018 gave a fair representation of results, the number of Kleihauers from the last 5 years was also examined, the results of which can be seen here.

From 2014-2018 a total of 18,512 Kleihauers were examined by LTHT of which 1.33% were positive. When looking at the positive Kleihauers in more detail, it was found that only 0.027% were greater than 12ml FMH requiring additional anti-D.

**Conclusions:**
- There were cases over the last 5 years where the antibody screen was negative and the Kleihauer was positive, requiring additional anti-D Ig.
- There was only 1 case in 2018 at LTHT where the FMH detected post-delivery was >12mls which required additional anti-D.
- Is there still a need for Kleihauer testing post-delivery when 1500IU anti-D Ig is being issued? - 4 cases in 5 years. Cost of £54,000 a year.

What are the options
- Extra dose of anti-D Ig as suggested by SHOT or increasing the dose given at 28 weeks – however, anti-D Ig prophylaxis can cross the placenta and cause foetal anaemia.
- Move the RAADP injection to slightly later gestation of 30-32 weeks – ? Another midwife appointment.
- Increase the dose post-delivery. Once the baby is confirmed to be Rh D positive and anti-D Ig is given, instead of giving 1500IU, it could be doubled to 3000IU. This would be a costly option, as the current system costs £54,000 a year, the cost of extra anti-D Ig at £46.60 would be significantly more expensive.

More data required nationally but worth investigating and revising the guidelines to reflect current practice.