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An observational study on transplacental passage of anti-D in RH:-1 pregnant women after antenatal prophylaxis

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OBJECTIVES

The administration of 300µg of polyclonal anti-D IgG at 28 weeks of gestation is currently recommended for RH:1 alloimmunization prophylaxis in pregnant women.

The objectives of this study were:

- To assess the **transplacental passage of anti-D IgG** at the time of delivery
- To search for indirect signs of anti-D IgG binding to RH:+1 fetal red blood cells

METHODS

The Functional Biology Unit of the CNRHP selected pairs of blood samples from mothers and cord blood routinely received from maternity wards.

The quantification of anti-D IgG in mothers' plasma and in cord blood was performed using a validated semi-quantitative Diamed® gel-based technique (LLOQ=1.6 ng/ml)

CONCLUSION

- **The majority of women having received 300µg of polyclonal anti-D IgG have detectable level of anti-D at delivery.**
- **There is an active transplacental passage of polyclonal anti-D IgG as described for IgG1.**
- **This active passage does not seem to be influenced by RH phenotype.**
- **Anti-D IgG that crosses the placenta is most probably consumed by RH:1 fetal red blood cells**

RESULTS

Patients

205 RH:-1 Mothers who had received 300µg of polyclonal anti-D IgG were included

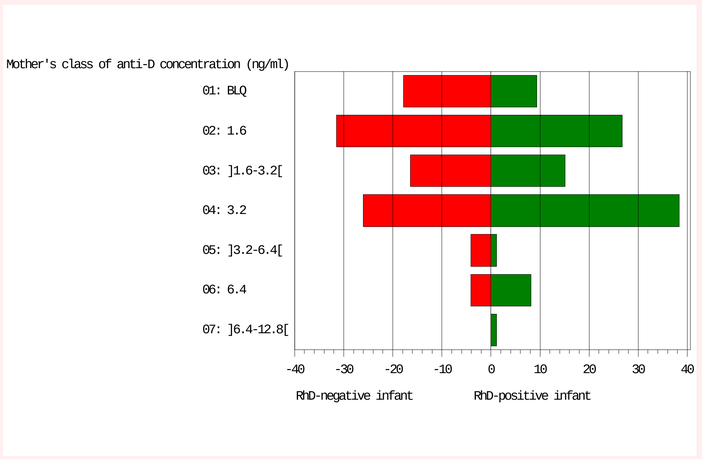
97 RH:-1 infants — 108 RH:1 infants

Without ABO incompatibility N=160

69 RH:-1 infants — *91 RH:-1 infants*

Mothers' plasma anti-D IgG concentrations

	RH:-1 infants	RH:1 infants	Total
Positive IAT	73 (75%)	86 (80%)	159 (77%)
Anti-D IgG microtitration			
BLQ	13 (13%)	8 (8%)	21 (10%)
Quantifiable	60 (62%)	78 (72%)	138 (67%)
Mean (SD) (ng/ml) [range]	2.37 (1.22) [1.6-6.4]	2.98 (1.52) [1.6-9.6]	2.85 (1.40) [1.6-9.6]



DAT in cord blood

DAT results in infants without ABO incompatibility are presented below

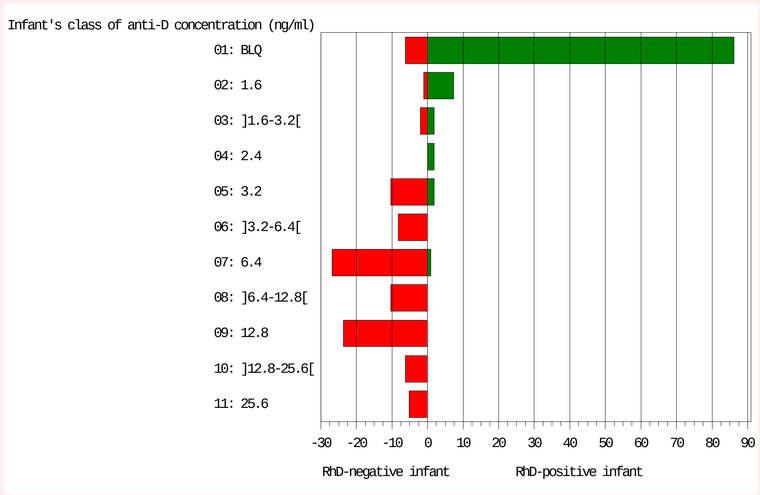
	RH:-1 infants N=69	RH:1 infants N=91
Positive DAT	0	18 (20%)

p-value <0.0001 (Fisher exact test)

Cord bloods' anti-D IgG concentrations

	RH:-1 infants	RH:1 infants
Anti-D IgG microtitration		
BLQ	6 (6%)	93 (86%)
Quantifiable	91(94%)	15 (14%)
Mean (SD) (ng/ml) [range]	9.64 (5.87) [1.6-25.6]	2.35 (1.26) [1.6-6.4]

- **up to 1% (3µg) of the injected dose ended up in the RH:-1 newborn circulation**



Conflict of interest: XXX, XXX are investigators of the study. Data analysed and abstract co-prepared with LFB (XXX).

LOGO Centre Investigateur

LFB ETHICAL COMMITMENT