The influence of maternal age, parity, gestational age and birth weight on fetomaternal haemorrhage during spontaneous delivery

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AIM OF THE STUDY

Determine the influence of maternal age, parity, gestational age and birth weight on the volume of fetal erythrocytes which enter the maternal circulation during spontaneous delivery. Determining these parameters would enable improving the guidelines for RhD alloimmunization prophylaxis.

WORKING HYPOTHESIS

A 10 μg dose of IgG anti-D administered intramuscularly should cover 0.5 ml of fetal RhD positive erythrocytes or 1ml of whole blood. In the vast majority of pregnancies less than 2.5 ml of fetal erythrocytes (5 ml of whole blood, sufficient dose of IgG anti-D is 50μg) enter the maternal circulation. Contrarily, only rarely does FMH exceed 5ml (10 ml of whole blood, sufficient dose of IgG anti-D is 100μg) during spontaneous delivery. Maternal age, parity, gestational age or birth weight does not influence the volume of fetomaternal hemorrhage during spontaneous delivery.

METHODS

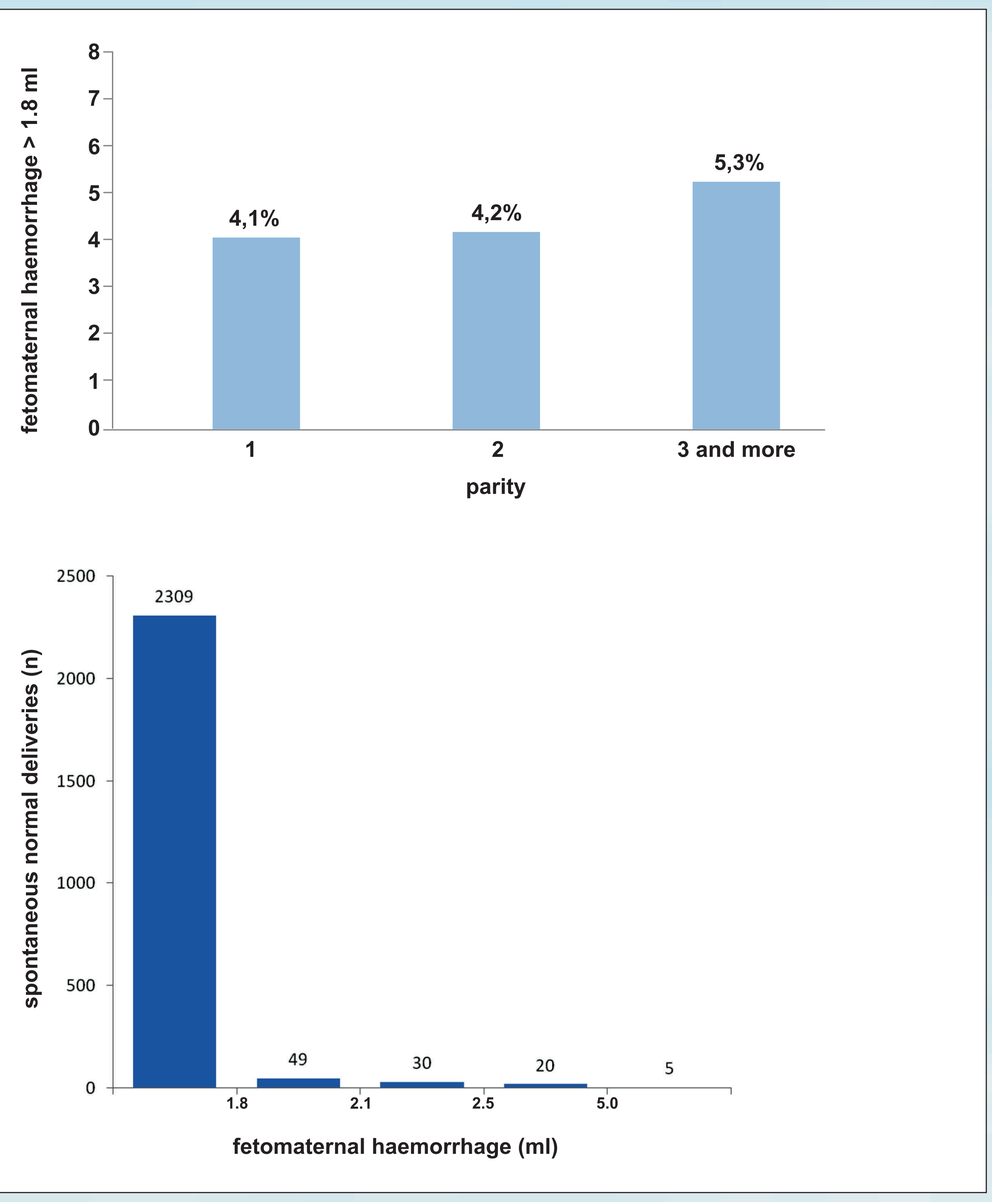
A total of **2413** examinations were performed. The amount of fetal erythrocytes entering maternal circulation during uncomplicated spontaneous delivery of one fetus was determined by flow cytometry using the BDFACSCanto cytometer (Becton Dickonson International).
Laboratory processing: Fetal Cell Count™ kit (Diagnosis of Feto-maternal Transfusion by flow cytometry), IQ Products, IQP-379.
Calculation of total volume of fetal erythrocytes entering maternal circulation: Scientific Subcommittee of the Australian and New Zealand Society of Blood Transfusion. Guidelines for laboratory assessment of fetomaternal haemorrhage. 1st ed. Sydney: ANZSBT, 2002: 3-12.

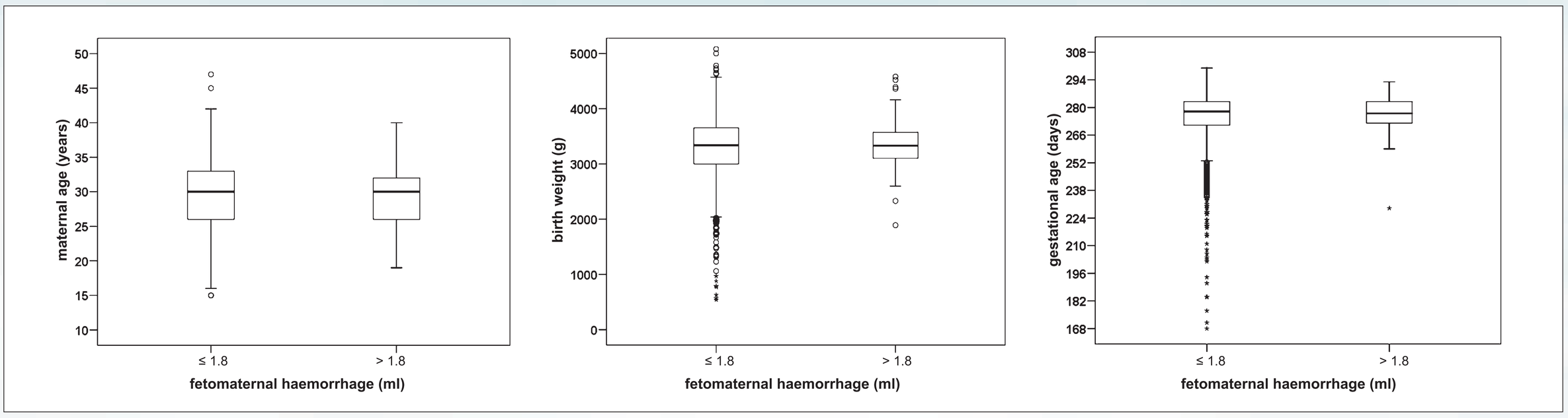
RESULTS

The average maternal age when FMH ≤ 1.8 ml (95 perc) was 29.4 years vs. 29.1 years when FMH > 1.8 ml, median 30 years in both groups, the difference was not statistically significant (p = 0.501).
The average gestational age when FMH ≤ 1.8 ml (95 perc) was 275.3 days vs. 276.9 days when FMH > 1.8 ml, median 278 days (39 weeks +5 days) vs. 276 days (39 weeks + 3 days), the difference was not statistically significant (p = 0.849).
The average birth weight when FMH ≤ 1.8 ml (95 perc) was 3312 g vs. 3353 g when FMH > 1.8 ml, median 3340 g vs. 3330 g, the difference was not statistically significant (p = 0.743).
FMH > 1.8 ml (5 perc) was present in 4.1% of primiparas (42/1023), in 4.2% of secundiparas (44/1050) and in 5.3% of multiparas (18/340), the difference was not statistically significant (p = 0.607).
The difference in maternal age, parity, gestational age and birth weight were also not statistically significant for fetomaternal hemorrhage FMH > 2.1 ml (2.5 perc), FMH > 2.5 ml (n = 25), FMH > 5 ml (n = 5).

CONCLUSION

Maternal age, parity, gestational age or birth weight does not present a risk factor for excessive fetomaternal hemorrhage during spontaneous delivery.





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