Treatment requirements of infants with rhesus isoimmunisation within a geographically defined area

A Greenough, G Hartnoll, H Hambley, J Richards

OBJECTIVE: To provide population based data on the treatment requirements of infants with rhesus isoimmunisation.

Setting: Twenty nine hospitals in South Thames in which 81 119 deliveries occurred between February 1999 and January 2000.

Design: Every month, a clinician identified in each of the hospitals sent back a postcard indicating whether or not an infant with RhD had required treatment in their institution. Antenatal and postnatal information was then requested from all those who gave positive responses.

Main outcome measures: Requirement for postnatal treatment for rhesus isoimmunisation.

Results: During the one year study period, only 26 infants required treatment for rhesus isoimmunisation. The median duration of phototherapy of the 26 infants was five days (range 1–12). Seven infants required at least one exchange transfusion (two required two exchange transfusions), and seven infants received one “top up” transfusion. None received erythropoietin and no infant died.

Conclusion: The results suggest that few infants require treatment for rhesus isoimmunisation.
infant born at 34 weeks gestation required one exchange and one top up transfusion and 12 days of phototherapy.

DISCUSSION

In this population based survey over a 12 month period in which there were 81,119 live births, only 26 infants required treatment for Rh disease and no infant died. Deaths attributable to Rh haemolytic disease were reported in 1994 to be 1.3 per 100,000 live births. It has been suggested that the true death rate is closer to six deaths per 100,000, as certification data exclude abortions and five times as many deaths were uncertified as certified by the General Register Office in Scotland. Our survey only included live births, and thus we cannot comment on the total fetal and infant death rate attributable to rhesus isoimmunisation. The data, however, have the strength of being prospectively collected and population based, thus giving an accurate reflection of infant mortality. In a survey performed in Northern Ireland over a 30 month period and including about 65,000 deliveries, there was only one neonatal death. These and our data suggest that the current neonatal mortality from Rh disease is low.

It has been highlighted that a large proportion of the cost related to rhesus isoimmunisation is the cost of neonatal intensive care. We therefore prospectively documented treatment requirements of infants with Rh disease. We did not collect information on infants who did not require treatment as such infants would have no extra financial implications. In this population based survey, we found that 26 infants required treatment—that is, 0.03% of the live births surveyed. It is possible that infants who received phototherapy exclusively on the postnatal wards may have been missed, but we think that this is unlikely because in 28 of the 29 hospitals we recorded the data prospectively on a monthly basis. In addition, at the end of each year all the clinicians were sent a check their records for the whole year. In a previously published survey of the outcome of RhD antibody affected pregnancies in Northern Ireland, there were 59 neonatal unit admissions for rhesus isoimmunisation; 29 of the infants required exchange transfusion and 55 required phototherapy. That survey was carried out over a 30 month period during which time there were about 65,000 deliveries. These data therefore also suggest that, compared with the number of live births, only a small proportion of infants require neonatal treatment for rhesus isoimmunisation. Nevertheless, the treatment requirements of the infants who are rhesus isoimmunised may be substantial. In comparison with our data, a greater proportion of the total live births in Northern Ireland required neonatal admission and treatment because of rhesus isoimmunisation. There are differences in the two surveys. We performed a prospective study during the year 2000, whereas they surveyed births, probably retrospectively from September 1994 to February 1997. In addition, 26 of their planned deliveries occurred in hospital without paediatric cover, whereas there were no such deliveries in the live births that we surveyed.

Although the data in our study on anti-D administration were incomplete, in five cases there had been failure to administer anti-D after miscarriage or termination of pregnancy. Thus it remains essential to continue to remind clinicians of the criteria for, and importance of, anti-D administration. Strict adherence to the guidelines for administration of anti-D prophylaxis would reduce the sensitisation rate.

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