# Decline in deaths from Rhesus haemolytic disease of the newborn

**ABSTRACT—Giving anti-D immunoglobulin postnatally to Rh negative women to prevent Rhesus haemolytic disease of the newborn in future pregnancies has reduced the incidence of this disease in the UK to such low levels that younger doctors are no longer familiar with it.**

We initiated the prevention of Rhesus haemolytic disease of the newborn (Rh(D)HDN) with postnatal anti-D immunoglobulin in Liverpool in 1961 [1]. At various intervals since then we have, with colleagues, reported the decrease in deaths from Rh(D)HDN [2–4] in the UK. Table 1 presents a summary of the data for the 16 years from 1977 to 1992.

The fetal death rate is now so low that it is more informative to estimate the maternal immunisation rate, ie the number of Rh negative women who become sensitised to their Rh positive fetus' red cells. In North America the immunisation rate is now about 10 times less than it was before the introduction there in 1968 of anti-D immunoglobulin prophylaxis [5]. In England and Wales, however, the maternal immunisation rate has fallen to a far lesser extent than the Rh(D)HDN death rate, probably because of the additional use, in North America, of routinely administered antenatal anti-D immunoglobulin as well as the postnatal dose.

The European Union has recently produced guidelines (111/3463/92-EN) indicating that the postnatal prophylactic dose of immunoglobulin should be 1,250 iu rather than the 500 iu routinely given in the UK. This, with antenatal as well as postnatal anti-D immunoglobulin, would require a great deal more immunoglobulin than is currently obtained from a panel of blood donors. Production using monoclonal antibodies might solve the problem, but clinical trials of synthesised anti-D immunoglobulin are not yet complete.

There are also problems with regard to the Kleihauer test (to detect fetal cells in the maternal circulation and determine the need for additional anti-D immunoglobulin) [6–8]; flow cytometry [9], by means of a specifically tailored anti-D, may be quicker and more reliable. Trials are being carried out in Liverpool (Dr Vanessa Martlew) and in Cambridge (Dr Willem Ouwehand).

Table 1 also shows that while deaths from Rh(D)HDN have diminished, the number of deaths mistakenly classified as such (category 6) have not decreased proportionately; eg cause of death on the baby's certificate given only as 'mother Rh negative', or as *haemorrhagic* disease of the newborn. This is probably due to the fact that because so few babies are now born with HDN, fewer doctors know and understand it.

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**Table 1.** Classification of deaths registered by the Office of Population Censuses and Surveys as due to haemolytic disease of fetus or newborn, 1977–92.

| Category | Year | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 1977 | 1978 | 1979 | 1980 | 1981 | 1982 | 1983 | 1984 | 1985 | 1986 | 1987 | 1988 | 1989 | 1990 | 1991 | 1992 |
| | Deaths due to anti-D* | | | | | | | | | | | | | | | |
| 1a | 53 | 40 | 40 | 31 | 14 | 17 | 4 | 1 | 5 | 8 | 1 | 3 | 2 | 0 | 0 | 0 |
| 1b | 32 | 28 | 24 | 23 | 12 | 16 | 12 | 11 | 11 | 9 | 9 | 5 | 5 | 5 | 4 | 2 |
| 2 | 12 | 11 | 10 | 6 | 6 | 5 | 8 | 3 | 9 | 8 | 7 | 6 | 2 | 3 | 3 | 2 |
| 3 | 9 | 7 | 12 | 11 | 9 | 6 | 9 | 9 | 8 | 5 | 10 | 6 | 1 | 2 | 2 | 5 |
| 4 | 0 | 2 | 1 | 1 | 0 | 0 | 1 | 1 | 0 | 0 | 0 | 0 | 0 | 1 | 0 | 0 |
| *Total* | *106* | *88* | *87* | *72* | *41* | *44* | *34* | *25* | *33* | *30* | *27* | *20* | *10* | *11* | *9* | *9* |
| Deaths/100,000 live births | 18.4 | 14.6 | 13.5 | 10.9 | 6.4 | 7.0 | 5.4 | 3.9 | 5.0 | 4.5 | 3.9 | 2.9 | 1.5 | 1.6 | 1.3 | 1.3 |
| | Haemolytic disease due to antibody other than anti-D (anti-c, anti-K, etc) | | | | | | | | | | | | | | | |
| 5 | 4 | 3 | 3 | 4 | 3 | 4 | 4 | 5 | 4 | 4 | 0 | 4 | 3 | 4 | 2 | 6 |
| | Deaths not due to haemolytic disease (that is, excluded after scrutiny of notes) | | | | | | | | | | | | | | | |
| 6 | 45 | 49 | 21 | 27 | 13 | 19 | 17 | 19 | 15 | 18 | 8 | 7 | 10 | 8 | 4 | 15 |
| Total deaths registered as due to haemolytic disease by the OPCS | 155 | 140 | 111 | 103 | 57 | 67 | 55 | 49 | 52 | 52 | 35 | 31 | 23 | 23 | 15 | 30 |

*Category 1: mother believed to have been immunised by pregnancy after which she was not given injection of anti-Rh immunoglobulin; category 1a: immunising pregnancy occurred before 1970 (when anti-Rh immunoglobulin not widely available); category 1b: immunising pregnancy occurred from 1970 onwards; category 2: immunised during first pregnancy (anti-D detected during or within seven days after first pregnancy); category 3: immunised despite having been given anti-Rh immunoglobulin after one or more previous pregnancies (failure of prophylaxis); category 4: immunised against D by blood transfusion. (For categories 5 and 6 see above.)