

Report

Incidence of rhesus isoimmunization in rhesus-negative mothers in Ramadi, Iraq, in the mid-1990s

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SUMMARY This work was carried out in Ramadi, Iraq over the period 1993 to 1997. Of 487 rhesus (Rh)-negative mothers tested and followed up, 172 were primigravida, 1.7% of whom were Rh-isoimmunized. The frequency of isoimmunization increased with increasing number of pregnancies (4.9% for second pregnancies to 45.4% for fifth pregnancies). Comparison of our results with other earlier studies shows that the incidence of Rh-isoimmunization in our study was considerably greater than the others.

Introduction

Since the introduction of the use of rhesus immunoglobulin (RhIg) in 1963 [1-3], the incidence of Rh-isoimmunization has been dramatically reduced [4,5]. The development of advanced diagnostic tools has revealed antenatal as well as postnatal Rh-isoimmunizations as well as the detection of feto-maternal haemorrhage [6,7]. The production of RhIg has been advanced by the use of human monoclonal antibody technology to facilitate higher rates of production and possibly more suitably standardized immunoglobulins [8].

Despite these advances and the widespread use of RhIg to prevent the production of anti-D antibodies by Rh-negative mothers, there are instances where isoimmunization still poses major problems to mothers and their babies [9]. In this work, we report a significant rise in the percentage of Rh-isoimmunizations among Rh-

negative mothers in Ramadi, Iraq, during the mid-1990s.

Patients and methods

Local pregnant women from Al-Anbar Governorate, Iraq, attending for medical follow-up and antenatal and postnatal care in the period 1993 to 1997, were the subjects of this study. Of the 487 Rh-negative patients studied, 172 were primigravida.

After clinical examination, patients were investigated initially for ABO blood groups and Rh group. The anti-D antibodies were investigated by immunological methods using the indirect Coombs test, as described in Dacie and Lewis [10]. The tests were carried out during pregnancy and after delivery, and the results recorded in their case sheets. The blood groups of the neonates were also investigated. Those who gave birth to Rh-positive babies and who were Coombs-test-

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negative, were advised to have a 300 µg dose of RhIg within 48 hours of delivery.

Results

Initial screening of the pregnant women admitted to the clinic for Rh antibodies revealed that none of the patients in the primigravida group was positive in the first trimester. However, after delivery, screening showed that 3 out of the 172 were positive (1.7%). After each subsequent pregnancy, the percentage of mothers with Rh-isoimmunization increased gradually from 4.9% in the second pregnancy to 45.4% in the fifth pregnancy (Table 1), with a total of 49 positives out of 315 (average 15.6%). However, of all the babies delivered in the primigravida group, 3 were Rh-negative babies, which raised the actual percentage slightly (from 1.7% to 1.77%). An equivalent rise was obtained in the overall percentage of positives in the multigravida group, since 7 babies were found to be Rh-negative, raising the total percentage of positives from 15.6% to 15.91%.

To compare these results with those obtained by other workers, a graph was drawn to show the differences in the percentages of women with Rh-isoimmunization according to the number of

pregnancies. The results were compared with two earlier studies: unpublished data from the 4 previous years (1988–1992) in Ramadi Maternity Hospital [N.S. Hameed and N.A.R. Al-Beiruti, personal communications,], and the study of Hundric-Haspl and colleagues (1991–1995) [4]. The frequency of isoimmunization in our study was found to be considerably higher than either of the other studies (Figure 1).

Discussion

While the study sample was relatively small compared to other studies, the results shown in Figure 1 demonstrate a considerably higher Rh-isoimmunization rate among Rh-negative women in our study compared with earlier studies. The percentage of isoimmunization following the fifth pregnancy was particularly high, but a sample study of only 11 subjects, as in this case, may render it statistically invalid. Appropriately administered, RhIg has been shown to reduce the occurrence of Rh-isoimmunization among Rh-negative women — in some instances, even after a number of pregnancies [5] and in the presence of severe fetomaternal haemorrhage [11].

The criteria for proper drug administration are that it should be well preserved, not

Table 1 Comparison of the rate of isoimmunization in primigravid and multigravid rhesus (Rh)-negative women

| No. of pregnancies | No. of Rh-negative pregnant women | No. of pregnant women with Rh-immunization | % of pregnant women with Rh-immunization |
|--------------------|-----------------------------------|--|--|
| 1 | 172 | 3 | 1.7 |
| 2 | 142 | 7 | 4.9 |
| 3 | 96 | 21 | 22.0 |
| 4 | 66 | 16 | 24.2 |
| 5 | 11 | 5 | 45.4 |

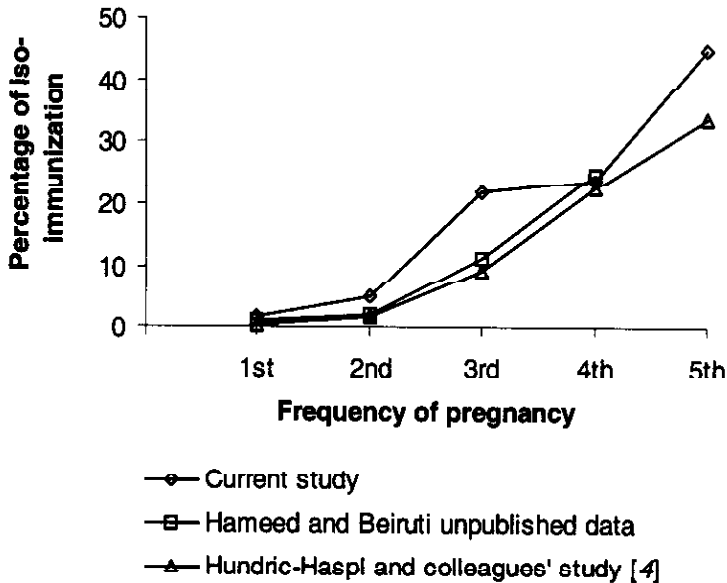


Figure 1 Percentage of Rh-isoimmunization among Rh-negative women in three studies

be very old and be available for immediate use. However, this was not always the case in our study. Some patients were obliged to purchase drugs for which the use-by date had expired. Others obtained the drug days or weeks after delivery and some patients

failed to obtain the drug at all. Consequently, there was an unpreventable rise in isoimmunization. Other contributing factors may have been the lack of awareness of some patients of the importance of this practice, exacerbated in some cases by occasional midwifery malpractice.

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