

Abstract

This article presents the results of a qualitative study which explored the knowledge and beliefs held by midwives regarding the necessity for postnatal anti-D administration to all rhesus negative woman who have given birth to rhesus positive babies. Data were collected using inter-views, electronic mail dialogue and written notes from 17 midwives in 8 countries who considered themselves practitioners within the 'midwifery model'*. The data were analysed using grounded theory. The results showed that the midwives do not believe that anti-D is necessary for all women, and that a number of factors may mitigate a woman's need for this product. It was suggested that the need for anti-D may, in part, be iatrogenic.

Introduction

For a number of years, midwives have been embracing a philosophy of evidence-informed practice. One of the effects of this movement has been that, when held up to close scrutiny, most of the interventions introduced into physiological birth have been discovered to be futile, and sometimes harmful, when used on a routine basis.

The routine postnatal administration of anti-D to rhesus negative woman who have given birth to a rhesus positive baby is one of the very few interventions which has not, to date, been challenged by midwife researchers. Anti-D is generally regarded as one of the medical world's 'success stories'; a product which has saved the lives of potentially thousands of babies. Yet more and more woman are questioning their need for this product, in the light of concerns about blood-borne pathogens and the risks to their immune system.

Background

In 1963, it was suggested that the administration of intramuscular anti-D immunoglobulin cleared fetal red cells from the maternal circulation and prevented rhesus isoimmunisation (1). Following this proposition, 9 clinical trials (2-10) were set up between 1968 and 1971 in Western Europe, Canada and the US in order to test this theory. The results of these clinical trials, which were considered to have proved this theory, led to the decision to administer this product on a routine basis. This policy has remained largely unchanged to the present day, with more recent research focusing on the specific dose required and the issue of antenatal administration.

Literature Review

A systematic review of the literature was undertaken at the onset of this project and a research protocol was developed as a tool for evaluation of original research papers. Application of this protocol to the 9 clinical trials showed that only two of these had utilised effective randomisation and the double-blind inquiry method, which suggests that the results may be subject to bias. One of these (8) was set up in response to what the authors felt were the methodological shortcomings of initial work in this area, but this was stopped after only 54 women were entered because anti-D was offered to all women on the basis of previous research.

The results of the trials showed that, on a population basis, anti-D was effective in preventing rhesus isoimmunisation. However, a closer look at the data shows that anti-D may not be necessary for all women: between 1.96% (3/153) and 13.39% (15/112) of women in the control groups were isoimmunised at 6 months postpartum. Overall, the average rate of isoimmunisation of women in the control groups was 7.5%, which implies that around 90% of woman may not need anti-D.

No research has yet considered why some women need anti-D while others remain unaffected. It is impossible to predict from the clinical trials whether this is a detectable difference, whether protection is likely to be conferred by some pre-existing condition or could be due to differences in transplacental haemorrhage or antibody production following exposure to the rhesus antigen.

It seems unlikely from the research evidence that transplacental haemorrhage is inevitable at any stage of pregnancy or birth. This is seen in around 15% of cases where a rhesus negative woman gives birth to a rhesus positive baby (11-13). We do not know whether transplacental haemorrhage is related to maternal or birth-related factors, although a study of the incidence of this during curettage following abortion found that trauma to the uterus increased its likelihood (14).

No research has been carried out into the long term implications or potential risks of routine postnatal anti-D administration either for women or subsequent babies, although there has been controversy about this in some areas (15). There is evidence of the transmission of the HIV (16) and Hepatitis C (17) viruses in anti-D, although the absolute risk of transmission of viral or other infectious material in blood is unquantifiable, because of the possibility of as yet undiscovered pathogens (18).

Anecdotally, a number of women report short-term but unpleasant rashes, flu-like symptoms and compromise to their immune systems for up to two years following anti-D administration. Some midwives are also questioning whether anti-D may have negative effects on the reproductive health of subsequent babies, particularly girls, whose blood composition may be affected by the effects of the product on their mother's immune system or blood composition or their own DNA. There is general agreement that further work needs to be undertaken into the risks and adverse effects of postnatal anti-D in women and subsequent babies (18,19).

The historical context of this research is an important consideration. The decision to routinely administer anti-D was made on the strength of the evidence from the clinical trials. At the time, the focus was on preventing rhesus disease in babies, and this was achieved. However, the results of the research show that not all women need anti-D, although no attempts were made to determine whether this was predictable.

The environment of maternity care has undergone myriad changes since this decision was made. There is a need to provide information for individual women, while enabling these women to make informed choices about their care. Midwives are in a difficult position with regard to informing women about anti-D, and a number of women are currently questioning the need for this intervention. The fact that none of this research included midwives, or was undertaken within a midwifery model was one of the main issues which led to this study.

Aims of the Study

The aims of this study were twofold:

1. To explore the nature of the beliefs, knowledge, views and ideas in relation to the area of postnatal anti-D administration of midwives who practise within the midwifery model and believe strongly in the normality of the birth process. It was felt that this may serve to expand the evidence in this area, acknowledging that evidence may come from sources other than quantitative research.
2. To determine whether analysis of this knowledge adds to the debate and / or supports the development of an alternative paradigm from that which currently exists in relation to postnatal anti-D administration.

Methodology

Quantitative research evidence is not the only form of knowledge acceptable to and useful in midwifery practice. Midwives may use tacit knowledge or intuitive judgement, they develop knowledge through their own experience and that of the women they serve, and they acquire knowledge through their senses (20). Because the medical model traditionally uses a positivist, quantitative approach, and this study aimed to explore other types of evidence, qualitative methods were considered the most appropriate. Grounded theory was chosen as the specific research method as it allows for on-going development of theory which is 'grounded' in actual research information (21).

A combination of purposive and convenience sampling was employed in this study and participants were targeted in a number of ways. Colleagues who had previously expressed an interest in the area and midwives on Internet discussion lists were invited to participate. A short article outlining the study topic and inviting responses was also published in an international midwifery journal (22). These methods also led to a degree of snowballing, where participants told other midwives about the research; this led to further responses.

Altogether, 17 midwives from eight countries participated in this study. All of the midwives considered themselves as practising within the 'midwifery model' and may be accurately termed 'holistic' in their approach to midwifery. Each provided a detailed initial written response to a 'trigger' set of study questions which detailed their thoughts, feelings, beliefs and knowledge in this area. The second stage of data collection involved semi-structured interviews with five of the participants, and electronic mail dialogue with another seven, in order to clarify responses and seek further information in relevant areas. While it is recognised that using e-mail to collect data is a new area, and not without problems, this was the only way in which dialogue with midwives from countries as far apart as Japan, Australia and Mexico was able to take place.

The data were analysed on an on-going basis. Responses were studied and broken down into initial categories which emerged through the data. These categories were refined and linked according to later data. Efforts were made to ensure that responses were used accurately and in context, and a hermeneutic approach was used once the results had been collated to 'check back' with five of the participants, who all agreed that the findings of the study accurately represented their original meaning.

Results

Aspects of three of the main categories derived from this study are described below, together with direct quotes from the participating midwives to illustrate their meanings and knowledge in the area.

1. Anti-D as a routine intervention: midwifery philosophy

"No intervention is necessary on a routine basis"

In terms of their philosophy, most of the midwives who participated felt that there was no such thing as an intervention which was justifiable on a routine basis. This was hardly surprising, considering that the research targeted midwives who considered themselves practitioners within the midwifery model. The overwhelming feeling which came through the data was that midwives felt there had to be some sort of 'explanation' for the need for anti-D, and that this information was vital to women.

Almost all of the participants directly stated that they felt anti-D was probably not necessary on a routine basis, and a number of reasons were given for this:

"I do not think anti-D is necessary on a routine basis because of the associated expense / maternal risk factors. I only arrange for the administration of anti-D to my clients if there is a clinical indicator for its use during pregnancy or after birth."

"I KNOW [participant's emphasis] in my heart that anti-D is not necessary for all of these women. All of my experience as a midwife confirms to me that birth works. I just wish I knew why ... [and] exactly what affects this."

"I just find it incredibly hard to accept that there is such a huge loophole in such a sophisticated system."

This 'midwifery model' perspective - that anti-D is not necessary on a routine basis, and that there is likely to be an explanation for individual variations in relation to this issue - contrasts vividly with the stance of the medical model, where rhesus isoimmunisation is seen to be akin to a potential disease requiring treatment.

2. The need for anti-D: historical factors

"If anti-D is necessary for some women, there must be a reason why."

One of the themes which emerged was the question of whether some women's need for anti-D had been caused by another factor. Again, this perspective

contrasts with the medical view that the need for anti-D is inherent and the result of an immunological 'malfunction' in all women's bodies. Although speculation in this area took a number of different directions, the main focus was on problems caused by the medicalisation of birth:

"[At the time of the clinical trials] we were doing managed third stage ... and all women got an epis[iotomy]. Well, I wonder how many of those women would have been sensitised if we had done more physiological third stages; whether this was causing higher rates of sensitisation than might happen in a normal population of women who had natural birth."

Following discussion of iatrogenesis came the suggestion that the rate of isoimmunisation in physiological birth may be so low that giving anti-D to all women would no longer be justified by a risk-benefit analysis:

"And if we knew what the real rate [of isoimmunisation in physiological birth] was, well maybe the risks of anti-D would be a more relevant factor. We should be looking at the data for real woman - individually and now - not the population that had their birth messed with in 1969!"

The point was made that rhesus disease may, if left alone, have been a self-limiting condition. One midwife summarised this by saying:

"Ironically, it may be because we have placed such a high value on the individual human life that, on a population level, we are going to suffer the consequences. I say ironically because doctors tend to ignore the individual in favour of the population in their research; it's a bit of a paradox when you think about it."

3. The need for anti-D: factors limiting sensitisation

"Birth works, if you trust it, understand it, and respect it."

Midwives cited a number of factors which they felt were involved in isoimmunisation. It was felt that isoimmunisation was not a normal feature of physiological birth and, in particular, that intervention in the third stage was a primary cause of isoimmunisation:

"Isoimmunisation doesn't worry me all that much. I know of several older women with negative blood types who had thirteen children and never had anti-D. I tend to trust that nature knows what it does."

"Why is there a chorion and an amnion? We need to ask - why does the chorionic plate exist at all? Unless maternal and fetal circulations were not meant to mix."

Other responses in this category have been summarised in Tables 1 and 2. Table 1 lists the factors which are thought to influence the likelihood of isoimmunisation, while table 2 lists the factors which midwives felt might give protection against isoimmunisation.

Discussion

The participating midwives offered a vast range of both general and specific knowledge and ideas within the midwifery model; only a small portion of which can be included here due to limitations of space. They demonstrate a move away from the 'received view' in the area, offering a range of ideas to explain the issues concerned and with a very definite focus on the practicalities of midwifery practice. Interestingly, the data collected is not really at variance with the scientific research concerning anti-D; the difference between data collected in this study and current medical views is more one of philosophy.

It could be argued that it is only within the medical paradigm that anti-D is seen as being necessary as a preventative measure for all rhesus negative woman who have given birth to a rhesus positive baby; the midwives in this study viewed this as an intervention which might be offered to appropriate women, but added that these woman should realise that they had a range of choices in this area.

Where midwives view the process of birth as a natural event which has a social and spiritual meaning, issues surrounding isoimmunisation are viewed in a different light. Medicalisation has caused the issue of rhesus negativity to become labelled with a notion of pathology, while these midwives see the issue as based in physiology. This is in keeping with the well-documented effects of Cartesian dualism on the medical model of birth (23). As it is now understood that this dualist model and a total focus on the physical bear little relation to the dynamic and holistic nature of birth, the evidence gained from this study suggests that the medical research on which policies concerning anti-

D are based offer only a small part of the evidence in this area. The implication of this is that we are simply not able to offer women enough information upon which they can base an informed choice.

The study also highlights the issue of unbiased information- giving to women; whatever the views or philosophy of the individual midwife, women need to have accurate and up-to-date information upon which they can base their choices. Perhaps midwives offering women information also need to be honest about their personal philosophical standpoint, in order that women can put the information they receive into this context.

Conclusion

This study by no means provides all of the answers; in many ways, it simply raises more questions. Several areas with potential for further research have been highlighted by the results, and the study has generated a great deal of 'new' information for consideration and reflection by midwives. At the onset of this study, I wondered if anti-D was the exception to the general rule that no intervention was necessary on a routine basis in birth. These midwives have helped to demonstrate that this may not be the case. Yet there remains a great deal of work to be done, in order to clarify the decision and the issues, both for midwives and women.

** It should be noted that the term 'midwifery model' is used here in a very specific sense, which may necessitate clarification. The 'midwifery model' describes a philosophical and practical approach to birth and midwifery which focuses strongly on the concepts of physiology, normality and holism. Proponents of this attitude are focused on the needs of the woman and trust in women's bodies, birth and nature. It is an integrating approach which has been further explored by Davis-Floyd (24), who contrasts the midwifery (or wholistic) model with the technocratic approach to birth, and by the Midwives Alliance of North America (25) who define the model further in their Statement of Values and Ethics. Participants in this study were aware of this conceptualisation of this model and deemed themselves practitioners within this philosophy.*

Table 1: Factors thought by participants to influence the likelihood of isoimmunisation.

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| <p>IMMUNOLOGICAL FACTORS</p> <p>ABO incompatibility may confer a degree of protection against isoimmunisation - antigens to A and B cells destroy fetal blood before production of anti-D occurs.</p> <p>It was suggested that if a very small amount of fetal blood enters the maternal circulation, there may be a natural mechanism for detecting and destroying these cells without producing anti-D.</p> <p>A 'natural immune defect' is thought to occur in some women which prevents isoimmunisation even if fetomaternal haemorrhage (FMH) occurs.</p> <p>While the 'received view' in the area is that women are naturally immuno-suppressed during pregnancy, which leaves them open to isoimmunisation, it was suggested that one of 'nature's reasons' for immunosuppression was to ensure that women did not produce antibodies to fetal blood.</p> |
| <p>CLINICAL FACTORS</p> <p>The third stage of labour needs to occur physiologically without any attempt at 'management'. Oxytocic drugs and any cord traction may interfere with separation and cause transplacental haemorrhage.</p> <p>Other interventions in pregnancy and labour are also thought to increase the possibility of FMH. As well as those which are already known (eg amniocentesis), midwives also cited ultrasound scanning, exogenous oxytocin, intrauterine catheters, episiotomy (which decreases the level of circulating endogenous oxytocin), fundal pressure, directed pushing and the use of local and epidural anaesthesia (which contain vasodilating drugs).</p> <p>The matthews-duncan method of placental separation may indicate FMH.</p> <p>An 'extremely large' placental site was thought to increase the likelihood of FMH.</p> |
| <p>OTHER FACTORS</p> <p>It was also suggested that the question of why some women become sensitised is linked to environmental factors; eg xenoestrogens and other pollutants which may interfere with normal physiology and / or compromise immune status.</p> |

Table 2: Factors identified by participants which may give protection against isoimmunisation.

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| <p>Optimal nutrition during pregnancy was cited as being of benefit in strengthening the placental bed and reducing the chance of FMH. Midwives felt women should concentrate on eating whole foods, fresh, raw vegetables, pulses and seafood.</p> <p>Midwives also suggested that women should avoid substances such as food additives, caffeine and alcohol which may deplete essential minerals.</p> <p>A number of natural substances are thought to strengthen the placenta and confer immune system protection; these include magnesium, iodine, vitamin C, bioflavonoids, red raspberry leaf, elderflower, echinacea, garlic and charcoal.</p> <p>It was suggested that fluoride interferes with the formation of collagen in the placental wall, and that women should avoid fluoridated water and toothpaste before and during pregnancy.</p> <p>Following on from the idea that immunosuppression was an important feature in preventing isoimmunisation was the suggestion that the hormones released while breastfeeding in the early days may also be a protective mechanism against antibody production.</p> <p>Several midwives stressed the importance of emotional and spiritual aspects of birth and the women's psyche. Although no prescriptive preventative or supportive treatment was offered, it was suggested that midwives should explore this area with women before and possibly during birth in order to 'clear' any issues which may arise that inhibit normal physiology.</p> |
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