PRACTICE OBSERVED

Reported management of threatened miscarriage by general practitioners in Wessex

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Abstract

Questionnaires were sent to all 1432 general practitioners in the Wessex region to obtain information about their current management of bleeding in early pregnancy. A total of 1290 (90%) returned completed questionnaires. These showed widely varying views about the prognostic importance of particular symptoms and physical signs and about elements of management. Although 96% of the respondents prescribed bed rest more or less routinely for heavy bleeding in early pregnancy, only 17% felt it was mandatory, and 32% admitted that they did not believe it affected the outcome. Of the 13% of respondents who prescribed progestogens for threatened miscarriage, most did so on the advice of their local obstetrician. Seventeen per cent of the doctors always admitted women with apparently complete miscarriages to hospital. Twenty nine per cent of the respondents never gave anti-D immunoglobulin to rhesus negative women after a complete miscarriage.

Bleeding in early pregnancy is a common problem and more research is required to improve management, particularly the assessment of fetal viability.

Introduction

Although there are no national data on the incidence of bleeding in early pregnancy (threatened miscarriage),[1] extrapolation from the information that is available suggests that it is common.[2-5] It is probably experienced by at least 70 000 women in England and Wales every year; about half of these go on to give birth. Despite this large number of women who experience threatened miscarriage the condition has not received much attention from researchers and the data that are available are not easy to interpret.[3,4] This difficulty almost certainly reflects the variety of study populations and study methods that have been used.

Some studies of threatened miscarriage have been retrospective, based either on samples of births or on registrants for hospital antenatal care[6-8]; these investigations have thus excluded women with threatened miscarriage who go on to miscarry in early pregnancy. Other investigators have studied the condition prospectively, but their study populations have been restricted to those cases of threatened abortion that have been referred to hospital[9-14]; these are unlikely to be representative samples of all cases. More complete ascertainment of cases has probably been achieved in those studies that have followed up members of health insurance programmes prospectively.[15-17] As far as we know, however, there has been no prospective study of bleeding in early pregnancy among residents of a geographically defined population.

As a leading article in the *British Medical Journal* pointed out over a decade ago, perhaps the solution to this problem lies with general practitioners.[18] In the United Kingdom women with bleeding in early pregnancy are likely to consult their general practitioners before any other health professionals. For this reason research into threatened miscarriage is most appropriately conducted in general practice. As a first step towards establishing a basis for such collaborative research we surveyed all general practitioners practising in a geographically defined area to seek information about their current management of bleeding in early pregnancy.

Subjects and methods

Wessex is an administrative region comprising Hampshire, Dorset, Wiltshire, and the Isle of Wight. We surveyed all the general practitioners in this area, rather than a sample of those working in England and Wales, because hospital statistics were available for comparison and because other regional studies had been conducted successfully in Wessex on termination of pregnancy[19] and perinatal mortality.[20] We also hoped that our survey might lead to a local awareness of the problems associated with miscarriages, which might help in further studies.

A list of the 1432 general practitioners working in Wessex was obtained from the four relevant family practitioner committees, and a questionnaire

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was sent to each doctor in November 1985. Reminders were sent to non-respondents in February and June 1986. Completed questionnaires were received from 1290 of the 1432 doctors, a response rate of 90%.

Despite two pilot studies of general practitioners in the Alton area the questions on the use of progestogens and anti-D immunoglobulin produced ambiguous replies, so a subsidiary letter was sent to a 10% sample of those respondents who had replied by July 1986. Of the 121 doctors who were questioned, 104 replied, a response rate of 86%.

After the replies had been coded data were entered on to the Oxford University ICL 2988 computer and analysed by the statistical package for the social sciences.

Results

The questionnaire first asked how the doctor would manage a hypothetical patient who, in the early part of her pregnancy, telephoned for advice about the onset of painless vaginal bleeding. If she complained only of spotting, 837 (65%) of the respondents said that they would give advice over the telephone and 159 (12%) said that they would visit her at home; if the loss was moderate the figures were 48 (4%) and 998 (77%), respectively. If there was heavy bleeding, 1272 (99%) of the respondents said that they would visit her at home and half of these would make arrangements immediately for admission to hospital.

When asked about the prognosis of bleeding in early pregnancy just over half of the respondents thought that less than 40% of women would go on to miscarry; 156 (12%) of respondents thought that over 60% of women with a threatened abortion would go on to miscarry.

Table I presents the replies from practitioners when they were asked whether each of six symptoms and signs indicated a good or a bad prognosis. Most doctors believed that an open cervical os and uterine pain indicated the completion of a miscarriage, but there was substantial disagreement about the predictive value of the colour of the blood lost and of nausea.

TABLE I—*General practitioners' opinions of prognostic value of signs and symptoms in presence of bleeding during early pregnancy. Figures are numbers (%) of doctors (n=1290)*

	Predicts miscarriage	Predicts survival of fetus	Meaningless	No comment
Pregnancy sickness	10 (1)	326 (25)	933 (72)	21 (2)
Colour of initial blood loss:				
Brown	172 (13)	111 (9)	964 (75)	43 (3)
Red	430 (33)	18 (2)	798 (62)	44 (3)
Brown becoming red	824 (64)	7 (1)	419 (32)	40 (3)
Uterine pains	1193 (93)	3 (0)	83 (6)	11 (1)
Open cervical os	1257 (98)	5 (0)	13 (1)	15 (1)

In assessing bleeding in early pregnancy, 209 (16%) of the respondents said that they always performed a bimanual vaginal examination; 304 (24%) reported that they never did this. A speculum examination was done routinely by 96 (7%), but 488 (38%) respondents said that they never did one (table II). The possibility that an internal examination might aggravate the bleeding or cause the patient to blame the doctor if she subsequently miscarried did not seem to be a concern.

TABLE II—*Tests used by practitioners to assess viability of pregnancy after bleeding has occurred. Figures are numbers (%) of doctors (n=1290)*

	Usually done	Usually not done
Bimanual vaginal examination	209 (16)	304 (24)
Speculum examination	96 (8)	488 (38)
Ultrasonography in hospital (as outpatient)	1045 (81)	245 (19)
Urine latex pregnancy test	817 (63)	473 (37)
Doppler ultrasonography to detect fetal heart beat	425 (33)	865 (67)
Physical examination of uterus for change in size	265 (20)	1025 (80)
Serum β human chorionic gonadotrophin	49 (4)	1241 (96)

Assessment of whether the pregnancy was still viable was also pursued to a varying extent with the five other methods listed in table II. The patient was sent to hospital for ultrasound examination as an outpatient by 1045 (81%) respondents; 817 (63%) arranged for a latex test on the woman's urine; and 425 (33%) used Doppler ultrasound in an attempt to detect the fetal heart. Only 265 (20%) thought that it was worth trying to assess prognosis by physical examination of the uterus on one or more occasions. Only 49 (4%) general practitioners stated that they had access to serum β human chorionic gonadotrophin assays.

The amount of physical activity advised by the doctor varied with the degree of bleeding. If there was only spotting the patient would be told to carry on as normal by 157 (12%) of the practitioners, to take it easy by 521 (41%), and to rest in bed by 601 (47%). When bleeding was heavy bed rest was recommended by 19 out of every 20 practitioners. This advice contrasted greatly with the comments on its usefulness: bed rest was thought to be usually ineffective by 413 (32%) of the respondents; 623 (48%) said that it was usually useful, while only 220 (17%) thought that it was mandatory. Many of the practitioners expressed concern that if they did not recommend bed rest they might be held responsible for a subsequent miscarriage. Three hundred and forty eight (27%) respondents mentioned that advice to rest in bed was standard medical practice, and 239 (18%) mentioned that they believed that it reduced the amount of bleeding. Other social and psychological reasons were mentioned by 190 (15%) respondents. As far as duration of bed rest was concerned, half (623) of the respondents recommended bed rest until 24 hours after the bleeding had stopped; a third (399) until the bleeding had stopped, and less than one in 10 for 24 hours. The remainder had other criteria. After a threatened miscarriage the patient might be advised to avoid subsequent straining, heavy exertion, or sexual intercourse by two thirds of the practitioners. Other restrictions were mentioned by one in five respondents, but one in six imposed no restrictions.

Progestogens were prescribed for threatened miscarriages by 14 of the 104 respondents in the 10% sample of practitioners (table III). Most respondents (12 out of 14) gave progestogens on behalf of the local consultant obstetrician; two out of 14 gave them on their own initiative or because the patient insisted. The results of the main survey suggested that less than half of those respondents who prescribed progestogens believed that these drugs increase the chances of a normal pregnancy.

TABLE III—*Management by practitioners of bleeding in early pregnancy. Figures are numbers (%) of doctors*

	Always	Sometimes	Never	No comment
Progestogens given for threatened miscarriage*	14 (13)		90 (87)	
Anti-D immunoglobulin given with threatened miscarriage*	8 (8)	9 (9)	77 (74)	10 (10)
Ergometrine given†:				
If bleeding is severe	88 (7)	512 (40)	677 (52)	13 (1)
After complete miscarriage	62 (5)	629 (49)	587 (45)	12 (1)
Patient admitted after miscarriage seems complete†	217 (17)	797 (62)	269 (21)	7 (0)
Anti-D immunoglobulin given after complete miscarriage*	48 (46)	25 (24)	29 (28)	2 (2)

*Based on 104 respondents in the 10% sample.
†Based on all 1290 respondents.

Rhesus negative women with a threatened miscarriage were always given anti-D immunoglobulin by only eight of the 104 respondents, and 77 never gave it in these circumstances (table III). More than half of the practitioners (782) considered that women who had threatened to miscarry should be under the overall care of a consultant obstetrician for the remainder of the pregnancy.

Half of the practitioners stated that they never gave ergometrine either when bleeding was severe or after a miscarriage seemed to have been complete. Of those who did, 484 (70%) gave it by injection, 69 (10%) orally, and 138 (20%) by both routes. If the miscarriage was seemingly complete, the patient was still at home, and her condition was satisfactory, 269 (21%) of the respondents would never admit her to hospital, but 217 (17%) always admitted such patients because they were concerned about further bleeding and the possibility of retained products. Neither the duration of gestation at miscarriage nor social conditions were found to be relevant factors in the decision to refer patients for hospital admission. Anti-D immunoglobulin was given to rhesus negative women more frequently after a complete miscarriage: 48 of the 104 respondents in the 10% sample always gave it but 29 never did so.

Cross tabulation of the answers by year of qualification showed that older practitioners were more certain of what they would do and more likely to advise bed rest and to mention that this was traditional teaching. Younger doctors tended to mention more practical reasons for bed rest and were more likely to think it ineffective. They are also more likely to give anti-D immunoglobulin, to use Doppler ultrasound, and to refer more patients to hospital for ultrasonography. The use of progestogens was no less common

among younger than among older general practitioners, and the reasons for giving it were similar. Respondents of all ages believed equally strongly in prohibiting intercourse with a view to preventing further bleeding. Cross tabulation of the results by practice size showed no significant associations.

Discussion

As far as we are aware this is the first survey of the management of bleeding in early pregnancy by general practitioners. Our questionnaire produced a 90% response, which compares favourably with other postal surveys of general practitioners. Answers to the questionnaire showed considerable collective uncertainty about the management of this common complication of pregnancy.

One of the keys to more rational management would seem to be more efficient evaluation of the viability of pregnancies in which early bleeding has occurred. Both the urinary latex test[21] (used by 63% of respondents) and detection of the fetal heart with ultrasound using the Doppler effect (used by 33%) have serious limitations: the latex test may remain positive for up to two weeks after fetal death,[22] and Doppler ultrasound is unreliable before the 12th week of pregnancy.[4] The serum concentration of the β subunit of human chorionic gonadotrophin can be used to assess fetal viability reliably between four and eight weeks' gestation,[4 23] but only 4% of respondents stated that they used this test because samples had to be sent to London and each assay cost £10.

Fetal movement can be detected (or excluded) reliably by real time ultrasound examination from about nine to 10 weeks' gestation.[24-28] This approach to the assessment of fetal viability was used by 81% of respondents but currently entails referral to hospital. In principle, the existence of portable real time machines for ultrasonography should make it possible for general practitioners to assess fetal viability in the patient's home. Not only should this avoid disruption of referral to hospital but it should ensure that women are neither confined to bed nor given drugs unnecessarily when there is no likelihood of the outcome of pregnancy being affected beneficially. These possibilities should be assessed in controlled trials.

In the light of the unsatisfactory arrangements for assessing fetal viability perhaps it should not be surprising that playing safe by prescribing bed rest remains the mainstay of the care of women with threatened miscarriage. This has been traditional advice since at least the time of Hippocrates,[29] and is recommended in eight out of 20 current obstetric textbooks sampled by one of us (CBE); only two authors stated that it was not indicated. The only controlled study that has been done to assess the effectiveness of bed rest (in hospital) was done over 30 years ago, and it failed to detect any beneficial effect.[29] Bed rest may be advised for many days and may cause considerable disruption to the family. Now that the presence of a non-viable pregnancy can be shown by either the concentration of the β subunit of human chorionic gonadotrophin before the eighth week[30] or ultrasonography thereafter, and because cytogenetically abnormal fetuses are found in such a high proportion of spontaneous miscarriages,[22 31] all women with bleeding in early pregnancy should have an appropriate investigation as soon as possible after the onset of bleeding. If the fetus is dead no amount of rest will help. There is obvious scope for conducting randomised trials to assess the value of bed rest in pregnancies in which fetal viability has been confirmed.

If bleeding settles and the pregnancy continues the couple concerned may ask about the risk of sexual intercourse. Two thirds of the practitioners advised abstinence, but a recent review concluded that prohibiting normal sexual activity in these circumstances is not supported by good evidence.[32]

Of the doctors surveyed, 13% used progestogens for threatened abortions, two thirds doing so on the advice of the local consultant obstetrician. The survey showed that younger doctors were no less likely to use progestogens than their older colleagues. A comprehensive overview of controlled trials has provided no evidence that progestogens are useful in these circumstances,[33] and the *British National Formulary* and seven of the 20 textbooks surveyed did not support the use of these drugs for threatened abortion. Nevertheless, the *Monthly Index of Medical Specialities* continues to recommend three progestogen preparations for threatened abortion (allyloestrenol, progesterone, and dydrogesterone), and half of the textbooks consulted recommended their use (many justifying their advice on the grounds that they believed the drugs to be effective placebos).

In 1975 the Food and Drug Administration in the United States expressed its concern that progestogens in early pregnancy might be teratogenic, and it continues to publish a regular warning to this effect. We strongly believe that these drugs should not be prescribed except within the context of further randomised trials. Such trials should obviously include only those pregnancies (probably a small minority) that have been deemed to be viable on ultrasound examination.

Tognoni *et al*[34] have estimated that 3% of all progestogens prescribed in the United Kingdom are prescribed for threatened miscarriage, and surveys have suggested that up to one in 10 pregnant women receive these drugs in some countries (M Bonati, personal communication). The Statistics and Research Division of the Department of Health and Social Security has estimated for us that the total annual cost of progestogens prescribed in England and Wales is £7 million. On the basis of the above estimates, we conclude that about £100 000 is spent every year on treating threatened miscarriage with drugs of unproved efficacy and questionable safety. This is not a responsible use of limited resources.

It is less easy to recommend rational policies for the use of anti-D immunoglobulin. Seventy four per cent of the respondents never gave anti-D immunoglobulin after a threatened miscarriage, and 28% never did so after a complete miscarriage. The onset of bleeding may well be the first time at which a woman consults a doctor, and her blood group may not be known. As anti-D immunoglobulin has to be given within 72 hours of the first bleed and has to be obtained from the local district general hospital considerable practical problems arise. Its administration after bleeding in early pregnancy has been recommended as good practice,[35] but Tovey recently reported that the degree of sensitisation is less severe after a spontaneous abortion than after termination of pregnancy, or birth.[36] It has been suggested that new sensitisations do not seem to originate from the omission of anti-D immunoglobulin after spontaneous abortions and that, because supplies are limited, it is most important to give it after termination and full term delivery.[37] Many of the doctors who responded to our survey clearly felt guilty about failing to give anti-D immunoglobulin. Although we know that some authorities (C A Clarke, personal communication) think that anti-D immunoglobulin should be given in these circumstances, it would be helpful if authoritative guidelines could be published to advise general practitioners whether they should give anti-D immunoglobulin to women threatening to miscarry or who have miscarried.

Our survey also showed distinct differences among doctors in their management of miscarriages believed on clinical grounds to be complete. Here again, more accurate diagnosis based on domiciliary ultrasonography could lead to more rational management, perhaps avoiding hospital referral and thus saving resources.[38] Basingstoke District General Hospital estimated for us that women with threatened or complete miscarriages had an average inpatient stay of two days in 1983 at a cost to the National Health Service of about £300 each. Not only might some of these referrals of women with complete miscarriages be avoided by better diagnosis in the home but those women who were referred might be managed differently and more cost effectively if ultrasound examination was used more consistently after referral to hospital.[38] Nearly all (94%) of the 55 090 women admitted to hospitals in England and Wales with spontaneous miscarriages in 1978 had an evacuation of the uterus,[1] and it is likely that most of these were performed under general anaesthesia. Even if evacuation seems justified in the light of findings on ultrasonography, general anaesthesia may be unnecessary. The same condition is treated quite differently in the Kaiser Permanente hospitals in southern California: outpatient investigations are completed within two hours and if the uterus has to be evacuated it is done under intravenous analgesia. Only those women who need a blood transfusion are admitted as inpatients.

It is difficult to derive a precise estimate of the prevalence of

bleeding in early pregnancy from the available information. Firstly, as many as one in every 10 women who experience a miscarriage may have no contact with the health services at all.[39] Drawing on a variety of sources of information leads us to conclude that at least 70 000 women in England and Wales experience bleeding in early pregnancy every year, and that the total number may be as high as 150 000.[5 40] Whatever the actual number within this range, bleeding in early pregnancy is an important problem judged by any criteria and deserves more systematic investigation than it has received so far. Studies based in general practice are required to derive better estimates of the incidence and prognosis of threatened miscarriage and to develop the improved methods of diagnosing fetal viability that are a prerequisite for more rational decisions about management. Different management options, both at home and in hospital, should be compared in randomised trials. Attention should be paid throughout to the views of the pregnant women because they too have received insufficient attention.[39]

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ONE HUNDRED YEARS AGO

An interesting address was recently delivered by Mr Victor Horsley, FRS, at the Royal Institution, on the subject of "Brain Surgery in the Stone Age." Having referred to the fact that our present civilisation is the outcome of man's working in stone, bronze, and iron in successive epochs, he said it was certain that as Troy was being overwhelmed by a race who had but quite lately learnt the real power embodied in the use of iron, and who were still clad in splendid bronze armour, the great nations of the north-west, whose surgical skill was his theme, were perforce content to satisfy their domestic needs with sharpened stone, while the luckiest among them but rarely owned a single metal instrument, even a bronze one. It was to him a most fundamentally important question whether the art of trephining had not reached a relatively high development in Asia before its introduction into Europe, or whether it could have been really evolved as a definitely new procedure in France, whence we got the clearest evidence of its use. He leaned to the view that some light broke upon us from the history of its decline than from that of its rise. It was during the polished stone period that this branch of surgery especially flourished in France, while in the same age it was carried on in the neighbouring European countries, though in a far less degree. Hence, whereas the Broca Museum of Anthropology in Paris contained about 60 specimens bearing on this point, including about 10 fairly complete crania, on the other hand the skulls operated on in all Europe besides could be counted on the fingers. Professor Horsley having spoken of the domestic life and habits of the dwellers in caves, showed, by reference to a manuscript of the 13th century, that the mode of perforating the skull adopted by the stone age peoples was either by scraping, drilling, or sawing the bone, the balance of evidence being in favour of the last process. He next showed that not only the pieces of bone which were removed, but also the edges of the holes thus made, were thought to possess beneficial, probably supernatural properties, and the fragments were worn as amulets. He further showed from the pathological evidence afforded by the specimens that the majority of the patients must have survived the operation. After fully describing the *technique* of the operation, the question as to the reason of its being undertaken was considered. He found that most of the operations appeared to have been performed on the vertex of the head, and that therefore they were probably undertaken to relieve depressed fracture. The lecturer then drew attention to the significant fact that the holes were also grouped, almost without exception, over the motor and epileptogenic region of the surface of the brain. He further suggested that since a depressed fracture in this region would almost certainly give rise to epilepsy, and at the same time occasion such local pain as to call for its removal for that reason alone, it was obvious that traumatic epilepsy would be relieved, if not wholly cured, by a trephining operation originally designed for nothing else but the relief of the fracture, a result which would certainly lead to wider adoption of the operation. The lecture was copiously illustrated by lime-light photographs of the trephined skulls and of the stone age implements. (*British Medical Journal* 1887;i:582.)