THE CHANGING ROLE OF THE OBSTETRIC FLYING SQUAD

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INTRODUCTION

Farquhar Murray (1929) outlined the concept of an obstetric flying squad when, speaking to the Edinburgh Obstetric Society he suggested that there were "........ many conditions in which, instead of rushing a shocked and collapsed patient to hospital for nursing and specialised aid, the specialist and nurse should be rushed to the patient". Consequently the Bellshill Emergency Service commenced officially in 1931 and records of the service are available from 1933. The period 1933-61 was reviewed by Liang (1963) and he concluded that "the main function of such a service is resuscitation and transfusion of the shocked and bleeding patient".

More recently doubts about the relevance of the service have been expressed. In a review of 25 patients admitted by the flying squad in one year in South London (Fergusson and Watson, 1976) it was concluded that few, if any, circumstances in modern obstetric practice merited continuing the flying squad in an urban area. This conclusion was based upon the finding that only 29 per cent of the calls were justifiable. In another small study, James (1977), arguing that the final decision for each flying squad call must lie with the general practitioner on the spot, suggested that this service still had a vital part to play in modern obstetric care. It was admitted however that the flying squad might be slower than a good emergency ambulance service.

The flying squad was discontinued five years ago in Dublin, a city noted in the past for its management of emergency obstetrical problems. The decision reflected changing obstetrical practice and there has apparently been no reason to regret it since (O'Driscoll personal communication). In contrast, as recently as August 1979, the Maternity Services Subcommittee of the General Medical Services Committee of the British Medical Association (1979) was of the opinion that "obstetric flying squads were still necessary in all areas".

A previously unpublished study of the activity of the flying squad in the Belfast area during 1964-69 revealed that there had been an increase in its work despite a reduction in domiciliary midwifery during the same period from 22 per cent to 10 per cent. It appeared that the flying squad was being increasingly used as a safe means of transporting patients to hospital rather than a resuscitative service. Interested by these findings we decided to examine records of all flying squad calls in the Belfast area 1973-78 and review current trends in the service and compare the two periods 1964-69 and 1973-78.

METHODS

The obstetric flying squad in Belfast started in 1943. The service is provided on an alternate week basis by the staff of the Royal Maternity Hospital and the Jubilee
Maternity Hospital. The area covered lies approximately within a 25 mile radius, the majority of calls being within a 10 mile radius.

When a request for the flying squad is received, an ambulance with two officers collects personnel and equipment from the hospital on call. The ambulance is provided from ambulance headquarters and is not itself specially equipped. The equipment is carried to the ambulance pre-packed in cases and boxes and includes resuscitative equipment together with drugs and sterile packs for carrying out deliveries and various operative obstetric procedures. Two units of unmatched group O Negative blood are also taken on each call.

The personnel consists of the duty obstetric registrar (or an experienced senior house officer) and a qualified midwife; a medical student may also go along. A careful record is made of each flying squad call including the source of the request; the nature of the emergency; the time taken from receiving the call till reaching the patient; the name of the general practitioner or district midwife concerned if any; the general condition of the patient on arrival and treatment, if any, rendered by the flying squad staff.

The records for 1964-69 and 1973-78 were carefully analysed and the following information extracted.

RESULTS

A total of 1728 calls were received over the twelve year period under review. Nine hundred and sixty seven of these occurred in the first six years and 761 in the second. The mean number of calls per year has decreased from 161 in the first six years to 125 in the second.

Examination of the source of each call showed that the number of requests made by a general practitioner or midwife has decreased from 81 per cent in the first six years to 54 per cent in the second. In contrast, the number of calls for the flying squad made by ambulance crews already on the spot has increased from 4 per cent to over 20 per cent. There has been a marked decrease in the number of occasions on which a general practitioner was present, from 47 per cent in 1973 to 23 per cent in 1978.

The average time taken from receipt of the call till actually reaching the patient was 20 minutes and was similar for both periods studied. The number of patients found to be clinically shocked (systolic blood pressure less than 100 mg Hg) on arrival of the flying squad was almost 30 per cent in 1964-69 (Table I). This has fallen to 11 per cent in the first three years of the second review period (1973-75) and to 7 per cent in the second (1976-78). This reduction is reflected in the percentage of patients requiring blood transfusion, 26 per cent in 1964-69 and only 4 per cent in 1973-78 (Table I).

The reasons for calling the flying squad show interesting trends over the two periods (Table II). Abortion has now superseded complications of the third stage as the commonest emergency. The incidence of calls for retained placenta has decreased gradually from 25 per cent in 1964-69 to 6 per cent in the last three years under review (1976-78). General anaesthetics were administered to 14 per cent of patients in 1973 and to less than one per cent in 1978. During 1973-78 32 per cent of patients required no treatment whatsoever and were simply transported to hospital.
TABLE I

Incidence of Patients Clinically Shocked and requiring Blood Transfusion on arrival of the flying squad

| Percentage of Patients Shocked | Percentage of Patients given blood transfusion |
|-------------------------------|-----------------------------------------------|
| 1964-69 30%                   | 1973-78 9%                                    |
| 1964-69 26%                   | 1973-78 4%                                    |

TABLE II

Distribution of Emergencies dealt with by the Flying Squad

|                          | 1964-69 | 1973-78 |
|--------------------------|---------|---------|
| Third Stage Complications| 42%     | 22%     |
| Abortion                 | 24%     | 26%     |
| APH                      | 24%     | 23%     |
| Eclampsia and Pre-eclampsia | 1%     | 2%     |
| Others*                  | 9%      | 28%     |

*Others include patients in labour or already delivered at home.

In the same period 17 per cent of all calls were to patients who were either in labour or who had inadvertently been delivered normally at home.

There were two maternal deaths in the 12 years period. During 1964-69 a patient at 22 weeks gestation suddenly collapsed at home and was dead within 20 minutes of the arrival of the flying squad. A post-mortem examination showed that death was due to a massive pulmonary embolus. The second maternal death occurred during the 1973-78 period and involved a 28 year old patient at 15 weeks gestation. On booking at eight weeks amenorrhoea a mass in the epigastrium was noted and a leiomyosarcoma of the stomach was subsequently diagnosed at laparotomy. The patient’s condition was very poor post operatively but at her own urgent request she was allowed home although near ‘in extremis’; next day her general practitioner called the flying squad because of heavy vaginal bleeding but the patient was dead when the team arrived ten minutes later.

DISCUSSION

The original function of a flying squad was to provide primary resuscitation for women with life-threatening complications of pregnancy and their subsequent safe transport to hospital. This was emphasised by Stabler in 1947 when reviewing the Newcastle-upon-Tyne Obstetric Emergency Service he stated that a shocked
pregnant woman must be saved an ambulance journey if at all possible and that this should be one of the prime objects of an obstetric emergency service.

Our findings show that the function of the flying squad has changed and this reflects the major change in obstetrical practice in Belfast since 1964, viz, fewer domiciliary and GP obstetric unit births. In 1964, 25 per cent of births in this area occurred outside specialist units whereas in 1978 this figure had fallen to 5.7 per cent. Thus in 1978 of 9,765 births to residents in the area served by the flying squad 10 (0.1 per cent) occurred at home and 551 (5.6 per cent) in GP obstetric units (Eastern Health and Social Services Board Statistics, 1978). This change alone has resulted in fewer calls for the flying squad service and in general calls of a less serious nature. The number of calls for third stage complications, once the commonest indication for summoning the flying squad (Fraser and Tatford, 1961) has been halved in the second period. The number of clinically shocked patients with systolic blood pressure of less than 100 mm Hg is now one quarter of that in 1964 and the percentage of patients requiring blood transfusion is now under 4 per cent and less than one sixth of that in 1964. This is in contrast to Liang's (1963) survey covering the years 1933-61 when 56 per cent of patients received blood transfusion.

The average time taken for the flying squad to reach a patient has remained unchanged at 20 minutes. This compares unfavourably with the average time currently taken for an ambulance to reach 999 calls in the Belfast area (less than ten minutes); a similar observation has been made by James (1977). The delay is due to the time taken by the ambulance crew having to collect flying squad personnel and equipment from the hospital before answering the call. It is illogical that while ambulance crews are willing and able to collect patients seriously injured as a result of civil commotion or traffic accidents, by tradition the obstetric flying squad is called for pregnant women with vaginal bleeding even if slight. Valuable time is often wasted during which the patient could have been transported by other means to the maternity hospital. Our ambulance crews have had much experience of quickly transporting shocked patients to hospital in Belfast as a result of civil disturbances over the past ten years (Gordon and Crockard, 1974).

The decreasing involvement of general practitioners in obstetric practice is reflected by the diminished number of calls made by them (81 per cent in 1964-69, 54 per cent in 1976-78) and by the decreasing percentage of calls at which they are present. This may partly explain the fact that nearly one third of flying squad patients over the past six years have required no treatment whatsoever and doubtless many of these could have been adequately managed without the flying squad if they had been seen by a general practitioner. This high number of unjustified calls has been reported in other surveys (Fergusson and Watson, 1976) and they are often made by a relative or neighbour of the patient. This source now accounts for nearly 20 per cent of all calls for the flying squad service. The reduction in planned home deliveries and in GP maternity unit deliveries over the past few years accounts for the marked decrease in calls for third stage complications particularly retained placenta and is reflected in the virtually negligible number of general anaesthetics now required.

In view of the changes which have taken place in obstetrical practice in Belfast and the corresponding reduction in the number of flying squad calls and their less serious nature, there would appear to be little need for an obstetric flying squad in such an
urban setting. Emergency calls to maternity patients could be dealt with by the normal emergency ambulance service which is capable of bringing the patient to hospital more quickly than either the flying squad or a mobile resuscitative unit such as that proposed by Zorab and Baskett (1977).

The emphasis in obstetrical care has moved away from infrequent maternal catastrophes and is now more concerned with the management of the fetus and neonate in danger. Rather than discard an outmoded service it should be brought up to date. It would seem that the time has come to dismantle the maternal flying squad and replace it with a service that could supply the urgent needs of premature and otherwise threatened fetuses and neonates. This could be achieved by the provision of a suitably equipped and staffed ambulance for transfer of women with complicated pregnancies or sick neonates to hospitals with special facilities—a perinatal Flying Squad.

SUMMARY

An analysis of 1,728 calls undertaken by the obstetric flying squad service over two six-year periods between 1964 and 1978 has demonstrated a change in its traditional role. The service has been used increasingly as a means of transport to hospital and is now summoned almost as frequently by a relative of the patient or a member of another ambulance crew as by the general practitioner or midwife. This reflects a decline in the involvement of general practitioners in midwifery and the virtual abolition of home delivery in the Belfast area. Rather than discard this outmoded service, it should be replaced with one which is staffed to provide rapid and safe transport of women and babies who require special hospital facilities—a perinatal flying squad.

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