General Practice Observed

Obstetric flying squad service—a defence

D K JAMES

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Summary

Eighty-one calls made by the obstetric flying squad in West Berkshire were assessed on the basis of a suggestion that patients would do as well, if not better, if they were brought straight to hospital by ambulance rather than await the arrival of the flying squad. Of the 81 calls, 36 were made to general-practitioner maternity units and 45 were made to patients' homes. In both groups, the flying squad service was considered to be still of great value. Though slightly slower than an emergency ambulance call, it represents a much safer method of transporting an obstetric patient in an emergency.

Introduction

The obstetric flying squad service, initially proposed by Professor E Farquhar Murray in a lecture to the Edinburgh Obstetric Society in 1929 and first introduced as an operational service in Belshill in 1933,¹ has remained a fundamental part of obstetric care for over 40 years. A recent study,² however, questioned the value of such a service in an urban area: the authors argued that the obstetric patient would have done as well, if not better, had she been brought straight to hospital by ambulance rather than wait for the arrival of the obstetric flying squad.

I have reviewed the calls made by the obstetric flying squad in West Berkshire with reference to this proposal. Eighty-one calls were made from 1 April 1975 to 31 March 1976; of these, 45 were to patients' homes and 36 were to general-practitioner maternity units (GP units).

Obstetric care in the West Berkshire health district

In 1974 the district had a population of 398 000, with a birth rate of 13.7 per 1000 population. Obstetric care is undertaken by the consultant unit at the Royal Berkshire Hospital, Reading, and four GP units at Reading, Wokingham, Newbury, and Henley-on-Thames. In 1975, 5606 mothers were delivered in the district, 4391 (78%) at the consultant unit and 1150 (20.5%) at GP units. There were 65 (1.2%) home deliveries.

Personnel and equipment on the flying squad call

When a request for the flying squad is received, an ambulance with two officers collects personnel and equipment from the consultant unit in Reading before setting out on the call. The equipment carried includes a portable anaesthetic machine and resuscitation equipment and drugs. Two units of uncrossmatched "O-negative" blood are taken on each call.

The personnel travelling on each call varies. In addition to the two ambulance officers, a duty obstetric registrar and a midwife went on all the 81 calls. The mean times they were away from the consultant unit were 79 minutes for calls to GP units and 50 minutes for calls to patients' homes. An anaesthetist or paediatrician or both are taken in the ambulance depending on the duty obstetric registrar's initial assessment of the case. An anaesthetist was taken on 32 (89%) of the GP unit calls and 26 (58%) of the home calls. A paediatrician went on only two calls, both from GP units.

Materials and methods

The 81 calls were analysed on the following basis: (1) efficiency of the service, (2) person making the call, (3) reason for the call and the final diagnosis, (4) condition of the patient on arrival of the flying squad, (5) treatment already initiated by the general practitioner by the time the flying squad arrived, and (6) immediate treatment given by the flying squad.

EFFICIENCY OF THE SERVICE

The efficiency of the service was examined on the basis of operational times. The Berkshire Area Health Authority Ambulance Service Standard³ was used for comparison. This standard is calculated on the basis of times taken for ambulances in the county to answer emergency calls in 1975 and shows that in 50% of such calls the ambulance reached the patient within eight minutes of the call being received, and that in 95% of calls the patient was reached within 20 minutes.

A breakdown of times for the 81 flying squad calls showed that in 50% of cases the ambulance arrived at the consultant unit to pick up personnel and equipment within 11 minutes of the call being received and in 95% of cases within 20 minutes. The loading of personnel and equipment took a further five minutes in 50% of cases and 13 minutes in 95% of cases. The 50% and 95% times, therefore, taken to have the flying squad ambulance ready to set out on the call are 16 minutes and 33 minutes respectively from the time of receiving the request.

Since the time taken for the flying squad ambulance to reach the patient's home or GP unit from the consultant unit is going to be the same as that taken by an emergency ambulance coming from the patient's home or GP unit to the consultant unit, the above figures are sufficient to compare the efficiency of the two methods of patient transport. Hence clearly the flying squad is slower at getting the specialist treatment to the patient than an ordinary ambulance call in an emergency would be at getting the patient to the treatment at the

The Royal Berkshire Hospital, Reading RG1 5AN

D K JAMES, MA, MB, senior house officer in obstetrics (present address: St Mary's Hospital, Whitworth Park, Manchester M13 0JH)

consultant unit. The difference (eight minutes in 50% and 13 minutes in 95% of cases) is entirely due to the delay incurred by the ambulance's having to collect personnel and equipment from the consultant unit before answering the flying squad call.

PERSON MAKING THE CALL

Thirty-two calls from GP units were made by the general practitioner concerned with the case. The remaining four calls were made by the midwife in charge. The patient's general practitioner initiated the call in 38 of the requests from the patient's home (84%). Four calls were made by the patient's husband, one by the patient herself, one by a neighbour, and one by the ambulance control.

REASON FOR CALL AND FINAL DIAGNOSIS

Each case was examined by comparing the reason for the request being made with the eventual retrospectively determined diagnosis. Generally, most calls from GP units were for third-stage complications, while most calls from the home were for antepartum haemorrhage. The agreement between presumed initial diagnosis and ultimate diagnosis at hospital was very close; in only one case did the reason for the call and the final diagnosis differ—that was a call from a GP unit

for postpartum collapse due to a presumed primary postpartum haemorrhage that was finally diagnosed as being caused by an overdose of medazepam (Nobrium) tablets.

Reasons for the calls, the final diagnoses, and the patients' managements are summarised in tables I and II.

CONDITION OF PATIENT ON FLYING SQUAD'S ARRIVAL

Of the 35 GP unit calls, 13 patients lost more than 250 ml of blood but only three were shocked and needed resuscitation. Fourteen of the patients seen at home had lost more than 100 ml of blood, and five had to be resuscitated because of shock.

TREATMENT INITIATED BY GENERAL PRACTITIONER

The patient's general practitioner had initiated some form of treatment by the time the flying squad arrived in very few cases—in only two calls from GP units and in seven calls from the home.

IMMEDIATE TREATMENT GIVEN BY FLYING SQUAD

The flying squad instituted some form of immediate treatment on most calls from both sources (32 cases from each). At GP units,

TABLE I—Calls to flying squad from GP maternity units

Reason for call	No of patients	No with haemorrhage ≥ 250 ml	No with shock	Treatment by GP	Treatment by flying squad	To RBH	Final diagnosis
Midtrimester haemorrhage	1*				IVI	1	Revealed abruptio placenta
Undiagnosed breech in labour	1*				IVI	1	Breech
Severe pre-eclamptic toxæmia in labour	1*				Breech delivery		Breech
Intrapartum haemorrhage	1*				IVI sedation	1	Severe pre-eclamptic toxæmia
Occipitoposterior position in 2nd stage	1*				IVI sedation		Mild pre-eclamptic toxæmia
Fetal distress in 2nd stage	1	1			IVI	1	Edge abruptio placenta
					Kielland's forceps delivery		Severe intrapartum haemorrhage
					Forceps delivery		Occipitoposterior position in 2nd stage
Delay in 2nd stage	1				Forceps delivery		Fetal distress, occipitoposterior position 2nd stage
Primary postpartum haemorrhage	1*				Forceps delivery	1	Delay in 2nd stage
Retained placenta	21*	12	1	CCT $\times$ 1	IVI	1	Postpartum haemorrhage
			2		General anaesthetic and manual removal $\times$ 17	6	Medazepam overdose
Retained placenta and postpartum haemorrhage	1*			IVI and IV ergot		1	Retained placenta
Secondary postpartum haemorrhage	1				IVI	1	Retained placenta and postpartum haemorrhage
							Cervical laceration
Total	36	13	3	2	32	14	

*Must be assessed and treated before moving.

RBH = Royal Berkshire Hospital.

IVI = Intravenous infusion.

CCT = Controlled cord traction.

TABLE II—Calls to flying squad from patients' homes

Reason for call	No of patients	No with haemorrhage ≥ 100 ml	No with shock	Treatment by GP	Treatment by flying squad	To RBH	Final diagnosis
Ruptured ectopic	3*	3	3	IVI $\times$ 2	IVI $\times$ 3 O-neg blood $\times$ 3	3	Ruptured ectopic
Incomplete miscarriage	1	1		IVI	Ergot	1	Incomplete abortion
	1*	1	1		IVI O-neg blood	1	Severe concealed abruptio placenta with intrauterine death
Antepartum haemorrhage (n = 32)	5*	3		IVI $\times$ 1 morphine $\times$ 2	IVI $\times$ 5	5	Revealed abruptio placenta
	11*				IVI $\times$ 6	11	Small antepartum haemorrhage
	7*	2			IVI $\times$ 5	7	Placenta praevia
	8	1			IVI $\times$ 3	8	Early labour
Severe pre-eclamptic haemorrhage	3*			Sedation $\times$ 1	IV sedation $\times$ 3	3	Severe pre-eclamptic toxæmia
Baby born before arrival	1				IV sedation	1	Born before arrival
Twins in labour	1*					1	Twins
Secondary postpartum haemorrhage	2*	1			IVI $\times$ 2	2	Retained products of conception
Retained placenta	1*	1			IVI	1	Retained placenta
Secondary haemorrhage after gynaecological operation	1*	1	1		IVI O-neg blood	1	Haemorrhage after Manchester repair
Total	45	14	5	7	32	45	

*Must be assessed and treated before moving.

RBH = Royal Berkshire Hospital.

IVI = Intravenous infusion.

however, the definitive treatment could be given immediately in most cases, with only 14 patients having to return to the consultant unit. In contrast, all the patients seen by the flying squad on home calls were brought back to the consultant unit, and in only five cases was the immediate resuscitation of critical importance to the patient's prognosis.

Discussion

Ferguson and Watson² have recently suggested that emergency obstetric patients would fare better if they were brought immediately to hospital than if they waited for the arrival of the flying squad. Their suggestion was based on a retrospective analysis of 25 flying squad calls in South London and the conclusion that only 28% of these calls were justified. Since different areas of the country vary greatly, any such observations are chiefly of value in the area where the flying squad service studied is operational. I have examined the validity of this suggestion for the flying squad service in West Berkshire.

The first important finding is that the flying squad is slower at getting specialist treatment to the patient than an emergency ambulance call would be at getting the patient to the specialist treatment. The next question to consider, therefore, is which patients benefit from a rapid transfer to hospital and which would be safer assessed and treated before moving. Though opinions differ, there is undoubtedly considerable danger in moving patients with antepartum and intrapartum haemorrhage, severe pre-eclampsia, twins and breech presentations in labour, and any third-stage complications. A good case may be made for insisting that such patients should first be assessed and treated before any transfer. The patients who fall into these groups are marked with an asterisk in tables I and II. Of the patients seen on calls to GP units, 31 (86%) fell into one or more of these "at risk" categories. Obviously this represents a strong argument for retaining the flying squad service to GP units in this area. The case is further strengthened by the fact that most patients treated on such calls were able to remain at the GP unit. Of the remaining five patients, the one with secondary postpartum

haemorrhage and the one with occipitoposterior position could have been transferred to the consultant unit by emergency ambulance, while the three uncomplicated low cavity forceps deliveries should have all been well within the scope of general practitioners on the obstetric list.

If the same "at risk" criteria are applied to patients seen by the flying squad in their own home 35 out of the 45 patients may be thus classified (78%). If one further eliminates those patients with a small antepartum haemorrhage in whom the final diagnosis was neither severe concealed or revealed abruptio placentae nor placenta praevia this still leaves 24 patients (53%). These figures contrast strongly with those of the South London study, where it was found in retrospect that only 28% of the calls were justified. Is the reason for this difference related to the much higher number of calls initiated by general practitioners in West Berkshire (84%) than in South London (4%)? Despite the high attendance rate of the general practitioner at the patient's home it is, nevertheless, disappointing that they instituted treatment in only 16% of calls.

The obstetric flying squad thus would seem to have a vital part to play in modern obstetric care in West Berkshire. Though it is slightly slower than an emergency ambulance call, it would appear to be a far safer method of patient transfer, especially when one considers some of the potentially more dramatic emergencies that can be encountered in midwifery. It is clear, however, that the decision about the justification for each call—and hence the true merit of a costly and time-consuming service—lies principally with the general practitioner.

References

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- ² Ferguson, I L C, and Watson, J M, *British Medical Journal*, 1976, **1**, 446.
- ³ Berkshire AHA Ambulance Service, 1975 Statistics, personal communication.

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Bone and Joint Diseases

Treatment and prognosis in clubfoot

N E SHAW

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Talipes equinovarus or clubfoot is a limb anomaly that is best regarded as a congenital dislocation at the talocalcaneonavicular joint. The cause is unknown, but clubfoot is probably caused by an arrested development at the 20-mm stage of embryonic life.¹ Conditions such as cerebral palsy, spina bifida, poliomyelitis, and other neurological disorders or arthrogryposis are special

conditions whose management differs from that of congenital clubfoot. They will not be considered here.

The disorder occurs in about one per 1000 live births according to studies from Britain and Scandinavia.² The incidence in Orientals is only about half that in Europeans, but in Polynesians the condition occurs about six times more often. A child born to a family where one sibling is already affected by the deformity is more likely to suffer from it than the normal population; a boy born to a family where there is already an affected girl is 20 times more likely to suffer from clubfoot.³ Children of an affected parent are more likely to suffer from the disorder. Studies of twins have shown that concordance is more common in homozygous than in heterozygous twins.⁴

Clubfoot is twice as common in boys as in girls and at least half the cases are bilateral. While there is clearly an associated genetic factor, its exact nature is not understood. The deformity

University Department of Orthopaedic Surgery, The Royal Infirmary, Manchester

N E SHAW, MB, FRCS, senior consultant