Training in neonatal resuscitation: the views of junior paediatricians

ABSTRACT—Senior house officers and registrars in one region were asked whether they received any training in neonatal resuscitation in this region and what they thought of it. Training in neonatal resuscitation is variable and often falls short of the guidelines of the Royal College of Physicians of London. The majority of the respondents were dissatisfied with the extent and the level of supervision of their training. The structure and content of training in this subject needs to be reviewed.

The training needs of junior hospital doctors in neonatal resuscitation were outlined by the Royal College of Physicians (RCP) in their report in 1987 [1]. It was stated that doctors performing resuscitation at births should possess skills in the various aspects of basic and advanced life support and should be accompanied by a ‘fully trained’ individual until these skills are acquired. How well are these guidelines implemented?

A questionnaire designed to assess the availability of such training was sent to 98 junior paediatricians (65 junior SHOs and 33 registrars or senior SHOs) within the North West Regional Health Authority who worked in hospitals containing a delivery suite (25 in teaching hospitals and 73 in district general hospitals).

Results

The questionnaire was completed by 65 doctors, giving an overall response rate of 66.3%. Seventeen replies were returned from teaching hospitals and 48 from district general hospitals, response rates of 68% and 65.5% respectively. Forty six replies were received from SHOs and 19 from registrars or senior SHOs, response rates of 70.7% and 57.5% respectively. Four of the doctors never attended neonatal resuscitation at all.

Experience before attending deliveries

Fewer than 10% of doctors had more than six months paediatric experience before attending deliveries. More than half of them (56.9%) had no paediatric experience before attending deliveries and a further 22 (33.8%) started delivery room duties within the first six months of their paediatric experience. Over 80% of respondents had received some training in neonatal resuscitation, with 40 doctors (61.5%) being trained before attending deliveries and 15 (23.1%) attending deliveries before receiving training. However, nine doctors (13.8% of respondents) had received no training in neonatal resuscitation at any time.

Methods of training

These are summarised in Table 1. For most doctors training in neonatal resuscitation was a singular event. Only 19 respondents (29.2%) worked in a department which had an ongoing training programme and 16 doctors (24.6%) attended simulated resuscitation events for training purposes.

Most doctors (64.5%) felt that this training was inadequate. Of the 42 dissatisfied doctors, only seven (16.7%) were part of an ongoing training programme and seven (16.7%) attended simulations of resuscitation. Of the 21 doctors who were happy with their training, 11 (52.3%) received ongoing training and nine (42.9%) attended simulations of resuscitation. The difference between the two groups was statistically significant for ongoing training ($p < 0.001 \chi^2 = 7.09$) but fell short of significance for the use of simulated resuscitation.

Over 70% of doctors worked in departments that followed a protocol for neonatal resuscitation. For 25 (38.5%) this was the Joint Royal Colleges Working Party report, Resuscitation of the newborn [2] and for 21 (32.5%) an in-house protocol. But despite recent publicity, 19 (29.2%) were working in departments that followed no protocol.

The results of resuscitation were reviewed in the departments of only nine (13.8%) of respondents, usually at morbidity/mortality meetings; the other 56 (86.2%) were not aware of any form of review or audit of resuscitation outcomes.

Support

Most of the support for resuscitation came from members of the paediatric staff, with 31 (47.7%) of the junior doctors being covered by an on-site senior paediatrician and 30 (46.2%) by an off-site senior paediatrician. The off-site paediatricians provided cover for 18 (80%) registrars or senior SHOs, the remaining 12 (40%) were junior SHOs who had no on-site paedi-
Table 1. Extent of training in aspects of neonatal resuscitation. Percentages are based on the replies of the 61 doctors who attended deliveries.

| Technique                  | Trained in technique n(%) | Trained by manikin n(%) | Trained by demonstration n(%) | Not trained in technique n(%) |
|----------------------------|---------------------------|-------------------------|-------------------------------|-----------------------------|
| BLS                        | 57 (93.4)                 | 24 (39.3)               | 5 (8.2)                       | 4 (6.6)                     |
| ALS                        | 51 (83.6)                 | 18 (29.5)               | 9 (14.8)                      | 10 (16.4)                   |
| Airway Maintenance         | 56 (91.8)                 | 23 (37.7)               | 8 (13.1)                      | 5 (8.2)                     |
| Bag & Mask ventilation     | 60 (98.4)                 | 23 (37.7)               | 8 (13.1)                      | 1 (1.6)                     |
| Intubation                 | 56 (91.8)                 | 32 (52.5)               | 6 (9.8)                       | 5 (8.2)                     |
| Drugs                      | 53 (86.9)                 | 1 (1.6)                 | 8 (13.1)                      | 8 (13.1)                    |
| Umbilical artery cann      | 39 (63.9)                 | 1 (1.6)                 | 22 (36.1)                     | 22 (36.1)                   |
| ET toilet (meconium)       | 25 (41.0)                 | 3 (4.9)                 | 8 (13.1)                      | 36 (59.0)                   |

BLS = Basic life support, ALS = Advanced life support, Umbilical artery cann = umbilical artery cannulation, ET toilet = endotracheal toilet.

Discussion

The higher return rate from junior SHOs than from registrars and senior SHOs may reflect the insecurity felt by this group about the quality of training received before they had attended any deliveries. The results may have been biased by those who felt their training to be inadequate and may therefore have been more ready to respond to the questionnaire.

This questionnaire assesses only the provision of training and not its quality. Two people commented that, although all aspects had been covered, this had been done in one single twenty minute talk which they felt to have been inadequate. Several doctors referred to 'learning on the job' and to the 'see one, do one' method of training. With regard to the RCP guidelines the following points are of particular concern:

- the majority of paediatricians attending deliveries had no prior paediatric experience;
- nearly 40% of paediatricians had no training in neonatal resuscitation before attending deliveries, though many were subsequently trained;
- nearly 30% worked in departments without a resuscitation protocol.

It is some comfort that the majority of inexperienced paediatricians had on-site cover from senior colleagues. Reports that help, when requested, was not always forthcoming are worrying but there may have been reasons in these instances why this was so. This questionnaire only assessed the extent to which the attending paediatrician would have liked to have additional support and not whether it was necessary—even a competent paediatrician may lack in confidence. However, studies in adult resuscitation suggest that junior doctors tend to overestimate their resuscitation needs.
skills [3] and that experience does not correlate with expertise [4].

The value of mannikin training and the experience of simulated resuscitation for training purposes were stressed in both the RCP training report [1] and the Joint Working Party guidelines [2]. This survey suggests that mannikin training is not often used and may reflect the poor quality of neonatal mannikins. The technique most often taught on a mannikin was endotracheal intubation, yet only 53% of respondents had received mannikin practice in this technique. One doctor commented that whilst a mannikin was available for personal practice, there was little time to use it, and another commented that there were not enough deliveries requiring resuscitation to maintain practical skills. Resuscitation skills deteriorate with time [4,5]. Simulated resuscitation may aid skill retention and ensure that standards are maintained when clinical opportunities are limited. Practical assessment of the neonatal resuscitation skills of paediatricians is restricted by the small numbers of senior staff covering most delivery units but may be more easily undertaken in the context of postgraduate courses.

Our survey suggests that some of the recommendations made in the Royal College of Physicians and Joint Working Party reports [1,2] are not being followed, in particular:—

- That those attending neonatal resuscitation should be competent in the techniques of resuscitation before they attend deliveries. This should include mannikin training on or before the first day of their appointment. Ideally, neonatal resuscitation should be included in undergraduate resuscitation training and assessed in the final examinations.

- That inexperienced doctors should be supervised during resuscitation until they are competent. This should include at least 10 deliveries requiring resuscitation.

- That doctors should be formally assessed on a mannikin before ‘going solo’ and at intervals thereafter.

We further suggest the following measures:—

- Regular audit of resuscitation incidents

- Trainers should themselves undergo regular training and appraisal through an advanced life support training scheme. This may usefully be included in the Advanced Paediatric Life Support course.

We hope that the measures outlined above may aid in the training of junior paediatricians in neonatal resuscitation and thus give a service to these patients.

References

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