THE NURSE IN RELATION TO ANAESTHESIA

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During the development of anaesthesia one of the main problems has been the provision of adequate specialist services. In many parts of the world this problem is still by no means solved,[1] but we can at least begin to look forward to the time when all hospitals will have sufficient fully-trained anaesthetists on their staffs. As conditions improve in this way, however, a second problem arises — the provision of assistance for the anaesthetist himself. Sometimes a second anaesthetist has been employed for this purpose, sometimes a technician and sometimes a nurse. The present position in regard to each of these will be reviewed briefly below, and some suggestions for the future will be made.

Anaesthetists are still much less favoured than many of their colleagues with regard to assistance. The physician who works in the wards is traditionally entitled to the help of nurses who spare him from many simple, routine duties such as taking the temperature and pulse of his patients. To an even greater degree the surgeon expects to have nurses to help him; not just any student nurses who happen to be at hand, but highly-trained and specialized theatre sisters who become members of the surgical team and to whom considerable responsibility is delegated.

It is uneconomical for a highly-trained and experienced specialist to devote a considerable proportion of his working time to cleaning and servicing apparatus, changing cylinders, washing syringes and so forth. Not only is it better from the point of view of economics for an assistant to perform such duties, but also, since they must otherwise distract the anaesthetist's attention from the more important aspects of his work, it is safer for the patient. Now that controlled ventilation is so commonly used, the anaesthetist's need for a second pair of hands is even more apparent. Not all anaesthetists have, or care to use, a mechanical respirator, so that whenever drugs have to be prepared for injection, or transfusions adjusted, the responsibility for ventilating the patient's lungs must be delegated to an assistant. Since these contingencies frequently arise at a particularly critical moment for the

patient, it is important that his ventilation be maintained in an efficient and harmless manner; nothing can be more worrying for the anaesthetist, at such a time, than a painful awareness of the fact that he is obliged to leave the patient's respiration in the hands of someone who is completely untrained. It is also in difficult and complicated situations of this kind that anaesthetic records can be most valuable, but the keeping of these must frequently go by the board for lack of an assistant.

All these are cogent enough reasons for accepting the fact that the anaesthetist requires some assistance; the nature and quality of this assistance must next be discussed.

PRESENT-DAY PRACTICE

At present there are 3 sources from which anaesthetists commonly obtain assistance — from a second anaesthetist, from a technician, or from a nurse.

The Second Anaesthetist

In postgraduate teaching centres there are trainee anaesthetists who derive considerable benefit from serving an 'apprenticeship' as assistants to established specialists. In these circumstances the problem of providing a second pair of hands is readily solved but unfortunately the system is open to abuse. It is quite unjustifiable to exploit juniors merely to fetch and carry for consultants; they must receive worth-while instruction at the same time. In some centres junior anaesthetists spend far too great a proportion of their training period as 'casual labourers' about the operating theatres, when they could far more profitably be engaged in watching their chiefs at work, doing reading and research, or studying their patients pre- and postoperatively. Although it is sometimes practicable, therefore, to provide the anaesthetist with assistance by making use of juniors this is by no means the complete answer to the problem. Furthermore, in non-teaching hospitals and less influential centres it is no more than a pipe-dream to suppose that adequate numbers of junior anaesthetists will be available.

Another important point that arises in this connection is that there are many situations in which a junior anaesthetist himself requires an assistant; e.g. when emergency surgery is being performed at night. This kind of surgery sometimes presents the most difficult problems in anaesthesia, yet often a junior anaesthetist is expected to take sole responsibility. He may have many tasks to perform in rapid succession in order to ensure his patient's safety and he may be seriously worried about his ability to cope with the situation. These are precisely the circumstances in which a second pair of hands should always be available; even a consultant, with his much greater experience and self-confidence, would almost invariably send for help when confronted with a similar type of case during the daytime!

The Technician

Many hospitals now employ trained operating theatre technicians who contribute materially to the efficiency of the whole surgical team. A clear distinction has to be made, however, between *theatre* technicians and *anaesthetics* technicians. A technician, who is expected to arrange the theatre equipment, adjust the light for the surgeon, mend the diathermy apparatus, and perform odd jobs for several different people, is unlikely to be of any real value to the anaesthetist. When his services are urgently required he is too often busy elsewhere and he does not have the interests of the department of anaesthetics sufficiently at heart to be a worth-while assistant. Even when the technician's duties are confined solely to anaesthetics, there are still difficulties. Firstly, if the technician has no background of nursing experience there are objections, ethical and otherwise, to his being left alone with an unconscious patient or carrying out any anaesthetic procedure without strict supervision. Secondly, the technician works a 9-to-5 day and therefore does not attend the hospital at night. In practice this means that he is available during the 'easy' part of the day when there are usually enough pairs of hands without him, but when a single anaesthetist is left to complete the list in a hurry he is no longer to be found. The employment of technicians on these terms does nothing to help the junior anaesthetist with his emergency work.

The Nurse

Throughout the world nurses are employed in many different ways in relation to anaesthesia. Sometimes they work as fully trained 'anaesthetists', without supervision, while in other places only 2 or 3 weeks of practical work and 2 or 3 lectures are devoted to anaesthesia during the training period. More detailed lectures on anaesthesia and resuscitation are frequently reserved for trained nurses intending to become theatre sisters or technicians.

In the USA many hospitals employ nurses as anaesthetists. This practice is becoming less common and there is at present strong feeling against the employment of nurse anaesthetists throughout the North American continent. This should not, however, be regarded as a final condemnation of the system in all its forms. Historically, nurse anaesthetists in America were a necessity; for many years there was such a shortage of specialists that nurse anaesthetists had to be employed to work under the direct supervision and control of surgeons. There is no doubt that this practice is undesirable, but the employment of nurse anaesthetists under conditions in which supervision is available represents a different situation. The nurse-anaesthetist system in a fairly typical American medical centre may be summarized briefly as follows:

A trained nurse anaesthetist is allocated to each operating theatre. Each theatre has its own anaesthetic machine and it is the nurse's responsibility to ensure that this machine is in working order and tidy; at the beginning of each day's operating it is her duty to collect all the drugs, endotracheal tubes, transfusion sets, syringes and other small pieces of equipment that she is likely to need. As each patient arrives in the operating theatre the nurse anaesthetist checks his identity, attaches a sphygmomanometer cuff, measures the blood pressure and fills in the relevant information from the case sheet on a record card. She then informs the 'anesthesiologist' that she is ready to begin and he either supervises her while she induces anaesthesia, or induces anaesthesia himself. From that time onwards the nurse anaesthetist does not leave the patient until the conclusion of the operation; she charts the pulse and blood pressure at regular intervals, maintains anaesthesia according to the requirements of the operation and sends for the 'anesthesiologist' whenever

she has a problem or anticipates trouble. At the end of the operation the 'anesthesiologist' again inspects the patient and assigns him to the recovery room or the ward according to his condition. Each nurse anaesthetist has one day a week off duty and does not work at weekends; apart from this she is expected to be in her operating theatre whenever operations are being performed, except for emergency cases. With regard to emergency and week-end duties, the nurse anaesthetists take turns to do one week at a time during which they are on call every night and throughout the weekend; during this week they have no duties in the daytime.

The success of this system depends upon the quality of the training received by the nurse anaesthetists and upon the efficiency of their supervision. It is a system which can easily be abused if supervision is casual and ineffective. On the other hand, it is a system which, properly managed, can provide a country which has insufficient trained anaesthetists with a reasonably safe and efficient anaesthetic service. One of the best features of the system is that the nurses become true members of the surgical team with duties and responsibilities similar to those of the medical staff. Their hours of work are divorced from the shift system which applies to the other hospital nurses and they are liable for emergency duties.

In Denmark and other Scandinavian countries nurse anaesthetists are still extensively employed but, unlike the position in the United States, there is no generalized movement towards their abolition. These nurses are trained to maintain the patient's general condition, perform controlled respiration and anticipate trouble. By performing these tasks they free the anaesthetist's hands and allow him more time for other duties, but whereas the American anaesthetic specialist who works with nurses devotes his extra time to the supervision of other operating theatres, the Scandinavian anaesthetist tends to spend his extra time supervising the resuscitation of shocked patients and participating in postoperative management.

In Oxford, posts are available for trained nurses to work with the anaesthetics department for 6 months. During this time the nurses work under the supervision of a permanent sister and receive lectures from members of the Nuffield Department of Anaesthetics. Although these nurses are encouraged to obtain experience in minor procedures, e.g. the administration of simple anaesthetics and the insertion of intravenous needles, their main duties are concerned with the upkeep of the anaesthetic room and equipment. Many nurses take a 6 months' appointment of this kind as a preliminary to becoming theatre sisters, since it gives them a worth-while insight into those parts of their duties which are concerned with anaesthesia. In Newcastle, also, trained nurses are accepted by the Department of Anaesthetics, where they obtain rather similar experience.

COMMENTS ON THE PRESENT SITUATION

A mistake that has been made in many countries, usually through sheer necessity, has been to delegate the responsibility for training nurse anaesthetists either to surgeons or to other nurse anaesthetists. Most of the shortcomings of present-day nurse anaesthesia are traceable to this source, and it is self-evident that if nurses are to take any measure of responsibility in connection with anaesthesia they should be trained by highly experienced specialists. Another assumption that has almost invariably been made is that it is essential for a nurse to complete a full general training before specializing in anaesthetics. Work in the operating theatre requires a different temperament and an entirely different set of interests from work in the wards and if a girl intends to make her *career* in connection with anaesthesia she should not be obliged to spend too much time on largely irrelevant ward work. Many nurses who have had a full general training dislike theatre work because they say that there is no 'real nursing' in it. Of course there is not, and the fact that a girl is competent at making beds and taking temperatures is no criterion of her ability to inflate the lungs or set up a transfusion. In any case there is a shortage of good ward nurses, and girls who have been fully trained for such duties should not be 'wasted' in the operating theatre. As an assistant, the anaesthetist really requires a person with some knowledge of nursing, some technical ability and some insight into anaesthetic matters; above all he requires somebody who is prepared to regard anaesthesia as a specialized career in the way that physiotherapy and radiography are regarded. Similar arguments have been advanced with regard to operating-theatre sisters,[2,3] and there is much to recommend these arguments. It is obviously necessary for all junior nurses to acquire some experience of the problems of surgery and anaesthesia, just as all medical students must, but it is ridiculous to *depend* on such people for the running of specialized services.

If a technician is employed for anaesthetic duties he is liable to expect the same hours of work as technicians in other trades. In the case of nurses, on the other hand, hours of work are likely to be determined by the hospital system. Each of these alternatives is thoroughly undesirable. Nurses employed for anaesthetic duties cannot conveniently work the same hours as other hospital nurses. They should be available for emergency duties, they should fit their hours of work to those of the anaesthetists, and it should be clearly understood that they are not 'general helps' in the theatre; it is extremely irritating to the anaesthetist if his nurse leaves for lunch or some other statutory break at a critical moment, or if she is so busy tying the tapes of the surgeon's gown that she cannot hand him a suction catheter in order to save a patient's life. The situation becomes even more ludicrous if, as sometimes happens, the nurse has to change from theatre dress into her full uniform, complete with cap and cuffs every time she goes to have a cup of tea!

SUGGESTIONS FOR THE FUTURE

It is not our intention to lay down hard and fast rules for the future. The precise way in which nurses and others are used in connection with anaesthesia must clearly be related to local conditions, but it is fairly safe to make certain general recommendations. Firstly, it must be clearly understood that it is no part of our present intention to advocate the employment of nurses as *substitutes* for specialist anaesthetists. In so far as nurses are concerned we are interested only in the possibility of their employment as *assistants* who work under the supervision of specialist anaesthetists and who are answerable to them.

Many of the anomalies in the rôles of the technician and the nurse in relation to anaesthesia can be obviated by acknowledging the desirability of a 'nurse technician'. Such a person should have some background of nursing experience but should also be freed from many of the administrative restrictions of nursing in order to enable her to pursue a specialized career. Some kind of certificate should be obtainable which entitles the nurse-technician to claim the status of a trained person, or there should be an examination she can pass, and once this level of competence has been attained remuneration should be sufficient to make long-term employment an attractive proposition. This type of specialized employment as a nurse-technician might well appeal to many male nurses, who often make excellent assistants for the anaesthetist.

Although it is not necessary for a nurse to complete a full general training before taking up work in anaesthetics, at least one year of general nursing should be regarded as essential. In this way the potential anaesthetics nurse-technician would be subjected to the same processes of selection as apply to nurses in general, and people with an insufficient standard of education would be eliminated at the outset. Also, a year of general nursing is an excellent means of acquiring a suitable background knowledge of the working and organization of a hospital while at the same time becoming familiar with medical terminology and practice.

If a nurse decides to take up work in anaesthesia her training should become the responsibility of the hospital department of anaesthetics, and her training should be organized and directed by the specialists with whom she will be working. She should attend general lectures on the theory and practice of anaesthetics; these should be informal affairs with plenty of opportunity for asking questions and clearing up elementary doubts. As far as practical work is concerned, she should be taught how to maintain and operate anaesthetic apparatus and how to take care of equipment. She should learn how to measure the blood pressure with a Tycos manometer, how to maintain the airway and how to recognize and correct respiratory obstruction. In this way she will become competent in the management of the unconscious patient; this will always be her first duty. She should also practise inserting intravenous needles and setting up transfusions, and the dangers related to the transfusion of fluids under pressure should be explained to her. She should be able to pass endotracheal tubes and carry out intermittent positive-pressure controlled ventilation in a safe and effective manner. Although it will not normally be necessary for the nurse-technician to perform intubation or deal with transfusions in the operating theatre, since a specialist will be available, it is invaluable to her to have knowledge of these techniques in case of emergency.

As far as work in the operating theatres is concerned, the objects of training nurse-technicians should be firstly, to enable them to prepare apparatus and equipment and ensure that it is in proper working order, and secondly, to enable them to continue an anaesthetic if the anaesthetist is unavoidably called away and to assist him when there are several jobs to be done at once.

Hospital design is tending more and more to the inclusion of recovery rooms or 'intensive therapy units' within the operating suite. Such units provide the obvious place for the management of patients with severe shock, respiratory insufficiency, and other complications related to the practice of anaesthesia. All the necessary facilities can be at hand and trained staff can be available. Here the nurse-technician could put her specialized training to good use in the management of shocked and unconscious patients, the supervision and aspiration of tracheostomies and the specialized attention that is required by frank or impending respiratory insufficiency. It is interesting to note that in many hospitals where recovery rooms have been established their advantages have become so obvious that patients are kept in them for increasing periods of time. Instead of remaining in the recovery room for only a few hours after surgery many patients, especially after cardiac and thoracic operations, are retained for several days. This means, of course, that larger units are required with corresponding increases in specially-trained staff. In the hospitals of the future anaesthetics nurse-technicians will be invaluable in this field of employment.

SUMMARY

In the interests of the patient there are many occasions when it is important for the anaesthetist to have an assistant. At the present time anaesthetists are less favoured than many of their colleagues in this respect; the quality of their assistance varies from the highly-trained nurse-anaesthetists of some American centres to virtually nothing at all in other parts of the world.

A plea is made for the organized training of 'nurse-technicians' as anaesthetics assistants, with some suggestions how this training should be carried out.

REFERENCES

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