CLINICAL ASPECTS

Chairman: Lord Brock

User needs of patients and nurses in clinical monitoring

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Summary

Monitoring equipment can be uncomfortable and even painful when connected to a patient and its mere presence can produce anxiety. It is possible to reduce these effects to some extent, and by adequate explanation and reassurance to persuade the patient to accept techniques which are used in his own interest.

The nursing staff will accept and use equipment, even though it is quite complex, if they are convinced primarily that it is necessary for the patient and reliable, and secondarily not too time consuming to look after. The equipment used for monitoring at the moment is too unreliable to be accepted confidently as a warning device. There is a need for much more reliable equipment in this field, but it is unlikely that the number of nurses required for an intensive care unit could be reduced.

It is generally agreed that there is a need for a technician experienced in electronics equipment to maintain and service these machines.

The patient's need is for a good nurse and the nurse's need is for a good doctor.

We have learned a lot this morning about monitors, sensors and computers from eminent and learned colleagues who are developing this equipment. As we can be carried away by the excitement of theoretical possibilities, we may sometimes lose sight of the patients and nurses who are practically involved in the day to day problems.

What are the views of the person connected to the other end and what does the busy Sister who has to use it think? I will try and throw some light on these problems.

With the exception of the occasional case in which overenthusiastic resuscitation is prolonging the agony of someone who is only too ready to retire

from advanced and painful disease the patient is intensively cared for in his own interest, and this commonly involves the use of monitors. In common with many forms of medical and surgical treatment the use of monitors is associated with some discomfort, which it is the duty of the doctors to keep to the minimum, and to explain as fully as possible that which cannot be relieved. The patient with confidence in his doctor will accept the short term pain for the long term gain—otherwise no one would present himself for surgery.

My experience is with a relatively new unit in a District General Hospital in which we always seem to be short of nurses and doctors. The equipment is on the whole, limited to ECG oscilloscopes with rate meters which work an alarm bleep when the heart rate increases or decreases beyond set limits. These machines do not fill Wolff's criteria (1968) for a monitor which are:

- Communication: tells someone not actually looking at it that something is going awry.
- Recording: measurements are recorded on paper at suitable intervals.
- Display: current values can be seen on some sort of dial.

The unit has five beds though the usual number of patients is three, all of which can be seen easily from the nurse's station and can almost be specialised from it. In this situation an alarm is almost unnecessary, apart from the fact that the ones we have always seem to be buzzing for one reason or another. The frequent false alarms blunt the real emergency and we no longer use them.

In the field of monitoring and intensive care the discomforts are of two types: psychological and physical.

Psychological discomforts

Are patients worried by being in a special unit and having monitors attached to them? There is no doubt that some of them are, as several papers show (Kornfield, 1969, 1967; Winkelstein, 1965).

The mental disturbances of patients in intensive care units are those:

1. Due to their illness, which is usually severe if they require admission to the unit.
2. Due to the environment of the unit itself, and it is with the latter—the effects due to the environment of the unit—that I will now deal.

I think it is relevant to discuss the attitude of patients to the intensive care unit, because it is largely in this unit that patients have any monitoring equipment attached to them, and anxieties produced, though not necessarily due to monitoring, are brought about by a situation in which monitoring is used.

The anxieties and worry induced by being in an intensive care unit, surrounded perhaps by banks of monitoring equipment, knowing that the unit is a place in which patients are very ill, even dangerously so, and visited by relatives dressed up in gowns or masks, may be alleviated to some extent by full and frank explanation. It is of course not difficult to explain to an ill patient but impossible to know at the time how much he comprehends. Quite often, indeed, he remembers nothing of the desperate days or only very hazily.

To try to find out the reactions of patients to the intensive care unit and monitoring equipment, all those admitted under one surgeon, Mr Stewart, over a period of two years, 1967–69, and who survived to be discharged from hospital, were interviewed. On this surgical unit it is the practice to explain fully to every patient what goes on and why—not once but several times during his hospital stay. The consistency of this was felt to outweigh the value of increasing the numbers by including patients from other units.

There were twenty-eight such survivors, of whom twenty-four attended for interview, at periods ranging from 1 month to 22 months following their discharge from hospital. Of the twenty-four, two were young children, leaving twenty-two patients aged 15 and over.

To the question: 'Were you worried or reassured by being in a special unit at the time?'

Four were worried or frightened,

Five were reassured,

Three did not realise it was a special unit, probably because they were so ill,

Ten were not bothered.

Most patients were pleased to be transferred to the general ward mainly because this indicated recovery. There were, however, a few patients (five) who were

not pleased to leave, and this may reflect the variable work load of the unit, as several of these were for a day or so before transfer, the only patient in the unit, and as such, quite spoiled by the nursing staff.

What we can say from this small number of patients, is that some people are worried about being in an intensive care unit in spite of full explanations.

The dreams patients describe may give some indication of suppressed anxiety and a few of our patients admitted to very clear dreams, sometimes recurrent during their stay in the unit. One patient who was worried by being in the unit dreamed of voices saying 'We're waiting for you Mr Smith.' Another patient worried by being in the unit, dreamed repeatedly that there was a hiss of gas from which a big gorilla emerged. The third vivid dream described, was of being in a prison camp and trying to get out. This type of dream has been described before and is said to reflect the helplessness of the individual.

However, Sgroi and co-workers found no difference in the incidence of mental disturbance between similarly ill patients, one group nursed on a general ward and the other group in an intensive care unit, although they were looking for more severe mental disturbance than in our category of 'worried' or frightened.

Kornfield (1969) made some suggestions to improve the acceptability of intensive care units to patients, including allowing sleep periods in which nursing care is reduced to the minimum.

Reducing monotonous noises as far as possible—as from air conditioning.

Monitors placed outside the cubicle if possible and with the tracing invisible to the patient.

Giving some means of orientation such as a window to the outside, a clock and a calendar.

He further goes on to suggest that frequent visits be made to the bedside from nursing and medical staff, to convince the patient that it is he who is important, not the equipment.

I think we would all go along with these suggestions, as an illustration that with thought and sympathy the patient's lot can be made tolerable during his intensive care.

Physical

The physical discomforts brought about by the extra attentions required in intensive care units, that is those attentions which would probably not take place if the patient were nursed in a general ward, are largely due to the presence of extra leads and tubes needed to feed information into the machines. These can be uncomfortable if not painful and also to some extent restrict movement. Suitable selection and arrangement of leads and electrodes will reduce

this to the minimum and patients rarely complain. Leads could be dispensed with entirely if, for example, telemetry were used. The residual discomfort can be explained to the patient satisfactorily, so long as he is convinced that his doctor honestly believes that the techniques will help. Patients tolerate far worse things than monitoring as for instance the simple naso-gastric tube or a post-operative bronchoscope for lung collapse. Rawles & Crockett (1969a) found the incidence of discomfort to be quite low. In one series leads and electrodes were said to be uncomfortable in only 3 patient days out of 284, an incidence of 1.1% and in another series they were either painful or uncomfortable in 7% of patient days out of 631.

The few patients we have interviewed confirm these findings, in that of twelve patients monitored by ECG, nine were unaware afterwards that this had been done. The other three did not find the leads or electrodes uncomfortable.

Our patients were either post operative or had suffered injuries and so were rather different from the above series in which the majority of patients were medical and most had had coronary thrombosis. Further, they were questioned after discharge whereas Crockett's were asked daily during their monitoring.

Nurses

The nurses' needs as regards monitoring equipment vary with the type of unit.

Reliability is probably the first requirement. I am wary of relying on a black box to monitor a seriously ill patient who may deteriorate suddenly. Consider the methods used in the anaesthetic room and operating theatre when dealing with high risk patients for major surgery. The patient can be hooked up to all the sophisticated equipment available, but for the induction I still like to have a competent nurse or doctor feeling the pulse. In the theatre, similarly, there is nothing quite so comforting as the feel of a full pulse in a pink and warm patient. It would be a brave man, indeed, who would retire with his dials to the surgeon's room, and one Coronor, I know, would be highly acid in his comments.

Does the machine help the nursing staff? If a monitor were absolutely reliable then no doubt it does help. If not, then the degree of help is debatable. Senior Sisters have a way of encouraging the use of the equipment they find helpful, and tactfully hide the rest. There is never any difficulty in bringing out mechanical ventilators when needed. These machines are essential and life saving. They involve the nursing staff in a lot of extra work, but the nurses are all keen to try them and learn about them. Some of the monitoring equipment hidden at the back of the

cupboard, is bothersome to use and not much help. Reliability and usefulness are the main nursing needs. Ease of management, interference of routine care by the leads or machines in and around the cubicle, can all be overcome with thought and ingenuity.

Whether monitors would allow a reduction in the number of nurses in our intensive care unit is doubtful. Frequent bedside visiting is important not only to the psyche of the patient, but to check on the monitor and make observations the monitor cannot, and anyway, if we had less nurses, on some occasions there wouldn't be any. However, in a bigger unit with the beds further from the nursing station, it may be possible to look after more patients safely with fewer nurses. It has been estimated that only a small percentage of nursing time is spent on making and recording clinical measurements. A machine would save little time, apart from the fact that a nurse could make several other observations at the same time, for example, conscious state, pupil size, restlessness and so on.

The communicating system of our monitors is unreliable, the recording of results saves little time so we are left with the current display. This enables a nurse to check more swiftly, from a greater distance. In other words, we have the conclusion that until more reliable machinery is produced, the nurse is the best monitor aided by display devices.

Lastly, I think most people would agree there is a need for technical help. The complexity of monitoring equipment is frightening and the best of machines blow a fuse now and then. A situation in which patients rely on machinery to inform nurses of their impending doom requires that the machinery is well maintained. There must, therefore, be suitably trained technicians on the spot to deal with faults as they arise. Wolff (1968) suggests that ward staff should be trained to recognize and clear faults themselves. I think it will be a long time before our nurses develop their technology to this extent and in the meantime please give us some technicians.

Conclusions

A doctor who believes that monitoring equipment will help a patient can quite readily persuade the patient to accept the usually minor discomforts involved.

The alarm systems at the moment are too unreliable and therefore, not worth the trouble of using. There is probably a need for improved equipment to which trained technicians can be called when faults develop.

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