

In recent years the use of plastic, particularly polyvinyl chloride (P.V.C.) for endotracheal tubes as well as for tracheostomy tubes, has been increasing. A report² from the United States suggests that P.V.C. may not be as innocent as is generally assumed, and it warns the medical profession that damage to tissues may follow prolonged contact with the mucosa. The report describes experiments in which pieces of endotracheal tubes made of P.V.C. were placed in tissue culture media and in rabbit muscles. The toxic substance appears mainly to be an organic tin compound, but other plasticizers may also be responsible. This report is important, for it draws the attention of the profession to the possible toxic nature of substances in the plastics now coming into general use in medical practice. Clinical users, and perhaps the British Standards Institution, might ask more questions than they have in the past about the likely toxic nature of materials used for tubes in the respiratory tract. For example, an American Army specification for endotracheal tubes already requires P.V.C. to be non-toxic and free from tissue reaction when implanted in rabbit muscles. It seems possible that ulceration and subsequent scarring of the trachea, as well perhaps as the occurrence of granulomata, may be the result not so much of pressure of tube against the trachea as of toxic substances in the tube material.

Another consideration is whether toxic substances in the tube material are formed and released during sterilization of the tubes by one method or another. It seems that gamma-irradiation may produce hydrochloric acid,³ while ethylene oxide often produces ethylene chlorhydrin, a very toxic substance. The latter was found after ethylene oxide sterilization of rubber, nylon, and polyethylene. It is recommended that plastics sterilized by ethylene oxide should be stored for at least one week before being used for procedures entailing prolonged contact with body tissues. In any case, it is safest to discard after one use only any P.V.C. that has been sterilized by gamma-irradiation and not to attempt to re-sterilize it with ethylene oxide.

There is no doubt that more attention should be paid to possible toxic substances in the material of endotracheal tubes, and particularly in relation to the method of sterilization. The immediate objective should be a clearer definition of what is to be considered non-toxic, and to aim at disposable endotracheal and tracheostomy tubes in order to remove the risks of re-sterilization.

General-practitioner Obstetric Units

A recent report¹ on obstetrics in general practice from the Royal College of General Practitioners brings welcome attention to the whole scene of obstetric practice and education. Without doubt general practitioners have played a major part in the development of this branch of medicine in the past, and it is now only too clear that they will have an equally important role in the planning and operating of obstetric services in the future.

The practice of obstetrics in Britain is moving rapidly into an institutional era. The report correctly recognizes that a doctor's standard of obstetrics is inevitably improved when he is practising in a general-practitioner maternity unit. This

doctor is far better able to cope with an unexpected complication in a properly equipped unit provided with oxygen, suckers, transfusion sets, and anaesthetic apparatus than could ever be the case with the emergency improvisations which are always necessary when an obstetric crisis occurs in a patient's home. Nowadays women are equally entitled to the safer conditions for delivery which the general-practitioner maternity units can offer—and so it follows that every town, suburb, and large village should have its own general-practitioner unit, a small maternity home provided with a well-equipped delivery room and several bedrooms, sufficient to allow the patient to stay overnight prior to returning to her home within 24 hours of confinement. These units need not be expensive and could easily be converted from any four- or five-bedroomed house. Where geographically possible it would be sensible to place the general-practitioner unit adjacent to the specialist unit, but clearly this will be done only in a minority of cases, as most specialist units will be found in the large district hospitals that are to form the hospital service of the future. The specialist will provide the district obstetric specialist services, including a flying squad for the serious complications.

Attention is drawn in the report to the high proportion of normal obstetric care unnecessarily conducted in specialist departments today—an uneconomical use of expensively staffed and equipped units. Purists can argue that any apparently normal case is always a "potential" complication. This argument can be answered by drawing attention to the need for well-trained general-practitioner obstetricians, which can be met only by high standards of primary and continuing education. The Council of the R.C.G.P. emphasizes that the basic vocational training of a general-practitioner obstetrician must take place after graduation, and indicates that only those with an adequate residential training should be admitted to the obstetric list. Continuing education for the established doctor out in active general practice is equally important, and here residential courses can be invaluable: ideally every regional hospital board should establish a postgraduate obstetric teaching department centred in a busy specialist department in one of its district hospitals where there is an abundance of abnormal obstetrics. It is now B.M.A. policy that such a postgraduate institute should be established in each region. Furthermore, no one would disagree that such a busy teaching and clinical department is the correct place to train future consultants; senior registrars can learn not only the technique and practice of obstetrics, but also understand the role of the general-practitioner obstetrician and the value of working in close liaison and harmony with him.

Life as a Haemophiliac

There are about 3,000 haemophiliacs in Britain. Two surveys have recently been published which will help doctors to understand some of the problems these patients have to face and their response to them. I. G. Bronks and E. Blackburn¹ found no gross social or psychiatric abnormalities in a group of 135 haemophiliacs who replied to a postal questionnaire. Only three had received treatment for illnesses (depression and anxiety) which might possibly have been a neurotic reaction to infirmity. The occupational history of those with only mild or moderate affliction was good, and 65% with

¹ *Obstetrics in General Practice*, the report of a working party, the Royal College of General Practitioners, 1968, price 7s. 6d.

severe disability were working. They attributed this favourable situation to the patients' robust spirit and to the effectiveness of social and physical treatment.

A very different situation had been described in 1964 by D. P. Agle,² who in a study of 16 haemophiliacs found that eight had recurrent depression or anxiety of incapacitating severity. Nine seemed to invite physical risks and this was interpreted as rebellion against maternal over-protection.

Neurotic reactions are so common and their causation so complex that it is important to determine to what extent their association with other conditions might be due to chance. The association between risk taking and haemophilia becomes less certain when we remind ourselves that many normal young men enjoy taking risks. For these reasons it is desirable to compare the population under scrutiny with a control population which as nearly as possible approaches the ideal of differing only in lacking the suspect variable.

Although neither of the above studies used control groups their very different findings suggest that if there is a link between haemophilia and the development of a neurotic personality then it is only very indirect. This accords with the views of E. Guttman and W. Mayer-Gross,³ who emphasized that the emotional response to lifelong deformity, a common complication of severe haemophilia, is very variable—ranging from unhealthy reactions such as self-pity and resentment to a cheerful determination to overcome adversity.

The requirements for healthy physical and emotional development in the haemophilic child sometimes conflict. Thus admission to hospital deprives him of his mother's company, and she must be encouraged to visit frequently and if feasible to help in his day-to-day care.⁴ Rosemary Biggs and R. G. Macfarlane⁵ have discussed in detail the problems of minimizing the risk of deformity by protecting the child from physical injury, but at the same time encouraging him to be active and self-reliant, and of providing suitable schooling and of educating the parents to cope effectively with the demands which the illness makes.⁵ Arrangements should be made for the parents to bring the child for prompt treatment when joint bleeding occurs, for A. M. Ali and her colleagues⁶ showed that the incidence of permanent crippling could be reduced to about a fifth by immediate plasma therapy.

The first report⁷ of the Haemophilia Society of a survey of its members points out that "finding and keeping suitable employment is the greatest problem facing the adult haemophiliac." The society sent questionnaires to 640 members aged 17 years and over. Completed replies were received from 487 men, and the data obtained were supplemented by 143 home visits made by an officer of the society. Though the information obtained may not be representative of all haemophiliacs, nevertheless the report contains much food for thought. Nearly one-fifth of the group were unemployed, a rate about four times that in the general population, and nearly half of these had been out of work for five years or more. The experience of individual patients suggested that disablement resettlement officers and prospective employers have a considerable fear of haemophilia, an impression borne

out by experience in haemophilia centres. Doctors can help considerably by explaining that haemophiliacs are not in danger of serious bleeding from very trivial injury as is commonly supposed, and also that modern plasma treatment greatly reduces the length of absences from work following spontaneous bleeds into joints and muscles.

Unemployment was three times as common among those who were permanently crippled as among those who were not. This again emphasizes the importance of early and vigorous treatment for bleeding episodes. The report also brings out the relation between employability and loss of schooling. Of 165 men who had lost up to a quarter of their schooling in childhood only 7% were unemployed; but of 89 men who had lost more than half their schooling 40% were unemployed. Education is particularly important for haemophiliacs because of the necessarily restricted range of jobs they can do. The survey showed that nevertheless one-quarter of those questioned were in manual occupations—which is a much smaller proportion than in the population as a whole—but those in non-manual employment were more successful at keeping their jobs. In addition it was found that over two-thirds of the non-manually employed attended haemophilia centres, whereas only just over half of the manual workers and unemployed attended. It is principally at haemophilia centres that urgent plasma therapy can be obtained.

The cost of the unemployment of haemophiliacs is illustrated by the calculation that the 65 men who had been unemployed for over a year would have been paid some £13,500 per annum in National Insurance benefits; and in addition to this there would have been the loss to the community of their working capacity.

Sewage from Boats

One of the more agreeable results of the rise in standards of living which has occurred since the war is the increase in the number of pleasure boats. Many of those who own or hire them live aboard for prolonged periods, and so have to dispose of refuse, sullage water, and sewage.

Small craft sailing in the open sea generally dispose of their waste directly into it, in the same way as larger vessels, and this is unobjectionable. A similar tolerance on many tidal rivers and estuaries is inevitable when they are already heavily polluted. Until there is proper treatment of the sewage discharging into these waterways regulation of the pleasure craft that use them would be futile.

Many people believe that higher standards are expected—and exacted—from boats using inland waterways and those tidal waters that are not already polluted by other means. In practice, what is permitted varies enormously from place to place, and on many waterways there is no effective control at all of the discharge of sewage from boats. The British Waterways Board, for example, equip their own canal boats with lavatories which discharge directly into the water. Local authorities have no powers to make regulations for pleasure craft, which are specifically excluded from those provisions of the public health acts that deal with canal boats.¹

¹ *Public Health*, 1968, 82, 187.

² *Thames Conservancy (Navigation and General) Bye Laws*, 1934. London.

³ *Thames Conservancy Launch Digest*, 1968. London.

⁴ Bronks, I. G., and Blackburn, E. K., *Brit. J. prev. soc. Med.*, 1968, 22, 68.

⁵ Agle, D. P., *Arch. intern. Med.*, 1964, 114, 76.

⁶ Guttman, E., and Mayer-Gross, W., *Lancet*, 1940, 2, 185.

⁷ Bowlby, J., *Child Care and the Growth of Love*, 1965, 2nd ed. (pp. 175 ff). Harmondsworth.

⁸ Biggs, R., and Macfarlane, R. G. (editors), *Treatment of Haemophilia and Other Coagulation Disorders*, 1966, chapters IV and XVII. Oxford.

⁹ Ali, A. M., Gandy, R. H., Britten, M. I., and Dormandy, K. M., *Brit. med. J.*, 1967, 3, 828.

¹⁰ *Survey of Adult Haemophiliacs: Report on Employment and Unemployment*, 1968. Haemophilia Society, London.