

by the people at the bedside. They are the ones doing the work; they should treat one another with respect, and they deserve to be treated respectfully by professional pressure groups.

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- <sup>10</sup> Royal College of Nursing of the United Kingdom. *Towards standards: a discussion document*. London: Royal College of Nursing, 1981.
- <sup>11</sup> Heyman B, Shaw M. Nurses' perceptions of the British hospital nursing officer. *J Adv Nurs* 1980;**5**:613-23.
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## Management of patients with bilateral amputations

Most patients in Britain who have had amputation of both their legs above the knee are over 60 and have peripheral vascular disease. Inevitably such patients have problems in regaining adequate mobility for daily living and their life expectancy is frequently short. Among the many factors contributing to the complex problems of rehabilitation are the physical difficulties—an aging body attempting to use two above-knee prostheses—and the unsuitability of most houses for the disabled. Other difficulties include obtaining a proper assessment of the patient and the accommodation at an early stage of rehabilitation (and passing on the result to all members of the care team) and halting the automatic prescription of a sequence of prostheses that may be inappropriate to a patient's abilities and displeasing to his self-image.

The fundamental problem is that most surgeons are willing to create this abbreviated form of the human body without accepting responsibility for its rehabilitation. Not until they assume this responsibility will they know what double above-knee amputation means in terms of human misery—and only then will they urge the research and activity that could mitigate that distress.

The very fact that artificial legs can be issued to such people tends to mask the severity of the loss of function that bilateral amputation entails. Other patients with comparable handicaps are expected to take to a wheelchair. Those with double amputations above the knee are expected to walk—and are themselves led to expect to walk again in most cases. All too often they are given artificial limbs irrespective of their physical and mental ability to cope with them; their failure to use these limbs is then seen as a defeat and leads to disappointment and depression. Recognition of this failure may be staved

off for months or even years of training in walking or limb fitting, with two or three visits each week to a physiotherapy department. There the patients practise walking on a smooth flat surface between parallel bars. Many trips to the local artificial limb and appliance centre are interspersed between these visits, and the patient may be fitted in turn with short rocker pylons, articulated rocker pylons, and definitive limbs, until he and his medical advisers finally concede that neither the training nor the prostheses are at fault but the patient himself, who is not suited to walking with prostheses. For any one patient this adds up to a formidable amount of misspent time in a life span that may be as short as two years, and to an equally formidable waste of money.

For someone with a double above-knee amputation to receive the right treatment and equipment, expert assessment is essential at the various stages of his rehabilitation (see p 707). The object of the initial assessment, which is the responsibility of the hospital team and should be done as soon as post-operative recovery permits, is to decide whether or not the patient is physically and psychologically fit to wear prostheses of any kind. Assessment of mental function looks for confusion, dementia, severe perceptual problems, or loss of memory sufficient to rule out the use of limbs. Assessment of physical function estimates exercise tolerance, the function of the arms, the structure and function of the stumps, and balancing ability.

Such a patient must be able to tolerate weight bearing on his ischial tuberosities, assisted only by whatever relief his upper arms can provide by the use of walking aids, and he must be prepared to accept the discomfort that walking and sitting in two rigid metal sockets frequently produces in the perineum. He must be able to understand and remember how to put his prostheses on and how to take them off again and be physically capable of managing or assisting in both procedures. His exercise tolerance must be sufficient for him to walk at least two lengths of the parallel bars without angina, palpitations, or unacceptable dyspnoea. Mild flexion deformities of the hips can be accommodated, but bilateral flexion deformities greater than 15° cannot; and so he must also be willing and able to do hip extension exercises to discourage the development of hip deformity.

Assessing the patient's home is the prime responsibility of the hospital team, though liaison with their community colleagues is essential. The assessment must take account of the possible need for structural alteration or for rehousing and the supply of equipment, as well as the ability and enthusiasm of the patient's family to have him home again. His own ability to manage a wheelchair or prostheses in the home surroundings is an equally important issue, since a patient who copes moderately well with either in a gymnasium may be virtually immobilised by the presence of thick-pile carpets, steps, and sills in his own home. Prescription of the wheelchair most appropriate for the particular needs of the patient—whether self-propelled, propelled, or powered—soon after operation is as important to overall independence as is the prescription of prostheses.

A patient can now be tested to see whether he is suited to walking with prostheses before being referred to artificial limb and appliance centres by use of a pneumatic pylon—a recently introduced and invaluable aid to rehabilitation. He can be observed in the hospital gymnasium while attempting to walk in a pneumatic pylon paired with the pylon or definitive prosthesis for the original amputation. Such an assessment should show both the care team and the patient whether or not walking with prostheses is a realistic proposition. If it is not

then he should be supplied with a suitable wheelchair and provided with equipment and surroundings for wheelchair living. Only if such walking is feasible should a patient be referred to an artificial limb and appliance centre for the provision of artificial limbs. The basic cost of a pair of short rocker pylons may be as much as £574 and of paired definitive limbs as much as £1314. This is exclusive of the cost of alterations, modifications, refits, renewals, and transport costs, and above all of the cost to the patient in exhaustion, frustration, and disappointment. The only prostheses that are always acceptable and always used by those lucky enough to own them are the purely cosmetic limbs or "trouser-fillers." They enable men and women to "sit decent" and restore their self-image and social acceptability, but for reasons of economy these are now seldom supplied.

Is there any other aspect of rehabilitation where so many skills are so poorly co-ordinated? Much could be achieved by transferring the limb fitting service from the DHSS to the NHS, so eliminating delays caused by postal and administrative procedures. Providing artificial limbs would then become a recognised treatment, to be prescribed or withheld by doctors and prosthetists working within a single service. But even in the system as it stands, better results could be achieved by proper use of available information and modern techniques and by more effective communication between all the staff who are concerned.

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## Preconception clinics

Should the obstetric care of women wishing to have a baby begin before conception? Many might regard the question as philosophical, but there are sound practical grounds for giving it careful consideration.

Firstly, a preconception clinic would give obstetricians a chance to counsel patients with chronic diseases such as epilepsy, cardiovascular disease, renal disorders, and insulin-requiring diabetes. Those having long-term treatment with immunosuppressive or anticonvulsant drugs or anticoagulants could have their regimens modified with pregnancy in mind. Diabetics could have their care monitored more closely during the time conception was being attempted; the avoidance of hyperglycaemia during the first trimester, assessed by measurements of glycosylated haemoglobin, might help reduce the incidence of fetal anomalies.<sup>1</sup> Apparently healthy women might also benefit; many have anxieties that could be allayed by sensible advice and genetic counselling when indicated. The weeks before conception are also the time when the reasons for such screening techniques as measuring maternal serum alpha-fetoprotein would best be given. Patients could then decide their response to the possibility of therapeutic abortion before becoming pregnant. Women who smoke could

be given help and encouragement to give up cigarettes—at least while pregnant. Dietary advice could be offered to those much above or below their ideal body weight; if the suggestions of Smithells and colleagues<sup>2</sup> prove to be correct this would be the time to suggest vitamin supplementation to help reduce the incidence of neural-tube defects. One particularly useful aspect of patient education would be to encourage women to record the onset of each menstrual period at the time they were attempting to conceive. At present about one-fifth of all pregnant women are unable to offer a reliable date for the onset of their last menstrual period; any improvement would be clinically useful.

Next, such clinics would provide a setting for simple clinical examinations and laboratory tests. Recording of prepregnant weight and blood pressure would yield valuable reference points against which to judge changes during pregnancy; blood tests usually first determined at a booking clinic would allow treatment to be instituted at a more logical time. Women susceptible to rubella could be offered vaccination, anaemia could be corrected, and syphilis, while rare, would surely be best treated before conception.

Lastly, a preconception clinic would allow the obstetrician to encourage women to attend booking clinics as soon as pregnancy was suspected. This might be helpful in increasing our understanding of the causes of two major obstetric problems: spontaneous abortions and fetal anomalies. About one-fifth of all human conceptuses are lost by spontaneous abortion. While this figure makes the British perinatal mortality rate seem comparatively insignificant, it provokes little clinical interest. At present women usually present to the obstetrician for the first time with symptoms suggesting the fetus is already jeopardised, so allowing little time for clinical investigation of the preceding events. Even when fetal development continues apparently uninterrupted many events that occur are little understood. If we assume the weight of a human ovum and the penetrated sperm is about 0.005 mg and the fetal weight at 12 weeks' gestation is about 13 g then fetal mass has increased about two and a half million times; by comparison the further increase from 13 g to about 3 kg at term is a mere 230-fold increase. Of greater importance is the fact that this increase in mass during the first trimester is associated with cell organisation, differentiation, and organogenesis. By the end of this period those anomalies that are going to affect the fetus are already present.

If obstetric care is to reduce further fetal wastage and the incidence of malformation, a better understanding of the first trimester of pregnancy is vital. Only by encouraging women to attend preconception clinics and thereby early pregnancy clinics can we hope to improve our knowledge of and clinical management of this vital, and as yet largely ignored, period of human development.

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