

the patient can be helped.

The patient who requires a surgical opinion must have careful assessment. Knowledge of the home conditions and of the affection or absence of affection of relatives is essential. The patient's desire to live will affect the whole outlook. The usual careful clinical assessment must be performed and any abnormality of haemoglobin or electrolyte metabolism must be corrected. Perhaps as important is that any information regarding the bodily and mental vigour of the patient before the onset of this present illness is of value. Some form of dementia screening or intelligence test should be employed, as the pseudo-alertness of the mild senile dement may, on casual examination, trap the unwary. Some scoring system of mental ability is useful—for example, demonstration of impairment of the mind may alter the course of suggested surgical treatment in that the patient who is elderly

and mildly mentally impaired may be recommended to have a minor procedure or a local anaesthetic rather than a major operation and a general anaesthetic.

Random sampling in the community gives an idea of the type of illness likely to be found and the pitfalls to be avoided. Examples of this are postural defect and incipient dementia. A knowledge of the dietetic habits of the elderly in an area may reveal the need to look for more uncommon conditions like potassium deficiency.

Preparation of the patient for operation includes mental stimulation, and it must be borne in mind that many have observed the cancer patient to be depressed and unresponsive and to improve so much after the operation has been performed. Radical curative surgery is rewarding and careful thought before operation pays.

GERIATRIC ORTHOPAEDICS

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The principles of orthopaedic surgery in the elderly are the same as at any other age, but the application of those principles differs considerably; emphasis has to be placed on both a full understanding of the aims of surgery and on the provision of proper techniques applicable to the aged. When the cardinal principle of return to function is considered it must be realized that in the elderly loss of function is loss of independence.

Old people do not ask for much; merely to live out their lives in peace and tranquillity with a satisfactory quality of existence. For this it is not always necessary to return full function to a part such as a fractured limb because it is neither right nor necessary to subject an old person to the same lengthy treatment and rehabilitation that is so correctly given to the younger adult. Geriatric patients do not have long to live and what time is yet available to them must not be wasted; thus it is always necessary to cut as short as possible their stay in hospital by achieving a satisfactory opera-

tion and a quick system of rehabilitation so that thereafter they can go home to their previous independence.

No old person must be kept in bed, for three important reasons. Firstly, decubitus in itself is bad for the muscle tone; the muscles in the aged are weak from the start, and to allow that weakness to increase may well jeopardize their ability to perform the activities of daily living at a later date. Secondly, the osteoporosis that is so common in the elderly also increases not only with bed rest but also with increased loss of muscle tone. Gravity, causing muscle tone to be maintained in the erect position, is the best antidote to weakness and osteoporosis. Geriatric patients who are bed-ridden sometimes have bones that are as fragile as a stick of chalk and can break when handled. Finally, the longer old people, possibly with confusion or mild dementia, stay in bed the more difficult will it be to teach them the simple activities of daily living such as dressing, toilet, cooking, and eating.

Fractures near the hip

The patient comes first, then the part, but the circumstances of the patient must also always be considered because it is only by a full understanding of the complete patient that quick and easy rehabilitation and return to independence can be achieved.

On admission Many old people admitted to hospital after an emergency present many other diagnoses besides the actual fracture. It is usual to find up to two other important conditions, excluding simple anaemia, which may militate against rehabilitation. In order to overcome such problems a suitable routine must be established; it is not possible for an orthopaedic surgeon to manage this alone and a team is necessary. Experience over many years with geriatric orthopaedics has shown that usually it is best to treat the fracture first and then to correct the other conditions that may be present, with the exception of untreated heart failure and untreated diabetes. These two illnesses must be controlled before operation, but in a suitably organized department this rarely need take more than 48 hours. The other contraindication to immediate operation is impending death, but should an old person who, on admission, appears to be dying not do so within a short time and after suitable resuscitation, then it is right to operate despite the serious risk attached. This is because after the operation the source of pain is removed, and even if death ensues within a further few days or weeks, at least that small remaining time is not spent in pain and discomfort. It is poor medicine to leave a patient lying in bed with a fracture near the hip, having to use a bedpan, and with all the other nursing problems causing appalling discomfort and a painful death. In such circumstances the risk of the operation is preferable to the patient and restores a better quality of existence. The mortality rate will of necessity be high but only in terms of time of survival after operation, and this should not deter the surgeon from acting in this very rightful manner.

Age in itself is no bar to operation. Nowhere is a geriatric patient safer than in the operation theatre in the hands of a competent anaesthetist.

Operation Fractures near the hip can be

divided into two main groups, those of the neck of the femur and those of the trochanteric region. There is probably no argument about the treatment of the latter, which must have a satisfactory pin and plate inserted with at least 5 screws and with a longer plate as necessary if the fracture is somewhat lower than the lesser trochanter. After this the fracture, firmly fixed, can be considered to have been dealt with and the patient may walk forthwith.

It is the fractured neck of the femur that is still much discussed, but when a large number of patients have to be rehabilitated after this fracture it has been found that by far the easiest way to return an elderly patient to independence quickly is by replacing the upper fragment with a prosthesis. The greatest experience has been with the Thompson prosthesis cemented in place. This appears to give more confidence to the patient than a similar type of replacement, such as the Austin Moore, that is not cemented. Again it is to be emphasized that the patient must be up the next day and walking and therefore any method that does not allow this should be discarded. Also any method that allows complications, either early or late, to occur is not considered acceptable. Thus pinning of the fractured neck of the femur, though giving individually good results in dedicated hands, is not an acceptable procedure as a routine in the treatment of old people in general. This is because the failure rate can reach 25% either from failure to unite or from avascular necrosis of the femoral head.

Approach For replacement of the femoral head the anterolateral approach is necessary, with entry to the hip between the tensor fasciae latae and the gluteus medius muscles, the fascia lata being split longitudinally. This technique permits excellent healing, even bearing in mind that the patient must be out of bed the following day. This emphasis on getting up follows the best geriatric principles of treatment of the elderly, all patients being out of bed for as long as possible each day, whatever their illness. The anterolateral approach is not easily contaminated by the incontinent patient, as is found with the posterior approach, and the anterior approach is often subject to difficulties in wound healing

because the incision is near the flexor crease of the hip.

Programme after operation The day after operation the patient sits out of bed and is then helped to stand and walk for a few steps. This simple demonstration by the team of its confidence in the procedure also gives confidence to the patient. Thereafter some patients will walk so well, whether it be a neck or trochanteric fracture, that they can go home within a few days of operation, to have stitches removed at a later date. However, many other patients, particularly those with other ailments, are ill and their rehabilitation will be greatly delayed unless they can be transferred to a geriatric orthopaedic unit.

The geriatric orthopaedic unit This unit is run by the geriatric medical staff and is nursed as an acute geriatric ward. The essential feature is a weekly ward round by the consultants concerned. Only those patients who are ill go to the unit. It is to be regarded as in no way a convalescent ward but as a unit to which those patients needing medical treatment are transferred as soon as possible after their operation.

Elderly patients with fractures near the hip can be divided into two main groups—those who have had a true accident, such as falling while gardening or tripping in the street, and those who have had some insignificant occurrence such as slipping to the floor while dressing or out of a chair in the kitchen. The first group are usually easily recognized on admission. They are active and their general condition is usually good, although they may also have other ailments. It is this group who will go home within a week of the operation. The other group may be considered to have had a fracture as a symptom of impending dissolution and it is these patients who need the geriatric orthopaedic unit and intense rehabilitation, both medically and orthopaedically, after their operation if they are to be discharged from hospital quickly. Between these two groups, at the time of admission, there is a third group in whom the immediate category cannot be determined but whose true condition will be found after the fracture has been dealt with. This is because many other conditions, such as hypothermia or shock from pain

and discomfort or from simple blood loss, may make categorization difficult. Even the healthy group often have considerable anaemia, which must be rectified in all cases by transfusion.

To get an old person out of hospital quickly is important in several ways. Firstly, the longer old people stay away from their home surroundings, the more difficult it is to adjust them to a return to independence. Secondly, the relatives, if there are any, become less able to accept the fact that the old person will be returning. Thirdly, there is often some mental confusion and the longer such patients are away from home, the more difficult it will be for the confusion to recover sufficiently when they get home for them to be able to continue to live independently. If a patient who is confused can be at home within a week or two, very often the confusion is greatly improved by the home surroundings.

The whole aim of the staff of the geriatric orthopaedic unit is to get the patients going and to maintain activity at a very high level. Even those patients who are medically ill are got up and practise the activities of daily living as best they can. Once the patient can walk the length of the ward and can dress and wash herself she may be assessed in the occupational therapy department and, if her kitchen requirements and domestic activities are also satisfactory, she may go home.

In the geriatric orthopaedic unit most of the day will be spent sitting in a chair. For the elderly a chair is the normal habitat, and although in the younger patient it may be a cause of complications, such as deep venous thrombosis, after operation, this does not appear to be so in the geriatric orthopaedic patient. Besides having a chair the patient also has a small wardrobe in which to keep personal belongings and clothes. This gives a certain sense of privacy and independence.

The important feature of the geriatric orthopaedic unit is the weekly ward round at which all members of the team are present. Here the surgeon is the least important, other than to affirm the safety of the orthopaedic procedure which has disposed of the fracture or of whatever other procedure has been done. Each patient has to be discussed in full. First the ward sister will report on the general condition of the patient, not forgetting the night

and with particular reference to incontinence. Should the patient be complaining of pain after the operation, other than the slight discomfort from the wound, this will be brought to the attention of the surgeon because an old person very rarely complains of continued pain after a fracture near the hip that has been properly dealt with unless some complication has occurred. Such pain must therefore be investigated immediately.

The most important role of the physiotherapist is to get the patient to walk, normally using a walking frame. Occasionally a different type of aid is indicated; thus for the patient with vertebrobasilar insufficiency or drop attacks it is better to provide a Rollator which, being pushed and not lifted with each step, keeps the movement of the neck to the least possible.

The main concern of the occupational therapist is the activities of daily living, such as the patient's ability to dress and to do all the usual tasks of toilet, cooking, and such household chores as will be necessary. It may be necessary to include a report on assessment in the kitchen unit.

The medical social worker will give an account of the requirements of the patient and any outside aids that may be available and whether there is finance to help the patient in any way.

The geriatric physician and his team should have made a full medical assessment during the patient's first few days in the unit and provided a scheme of treatment for the future. There are unfortunately many conditions that cannot be rectified, such as confusion or dementia, and for these and suchlike ailments it is important to have a mental chart which is filled in on admission and then weekly to assess whether the confusion is getting better or worse. The latter is a gloomy prognostic feature.

Every patient is considered in this manner and, according to the assessment of progress by the team as a whole, either the patient is considered fit to leave hospital or the programme is planned for the coming week. By such concentrated efforts most patients—even those who were very ill on admission—with a fracture near the hip are able to go home within a few weeks of the accident. At the

same time the healthier patients, not needing the geriatric orthopaedic unit, will go home direct from the acute orthopaedic ward, usually to have their stitches out at a later date.

Other fractures

In the geriatric patient all fractures should be treated as energetically as possible. Even the simple Colles' or Pott's fracture can prevent an old person from living alone. In all cases the whole patient must be treated, and the more severe the injury, the more necessary will be the operation to deal with the fracture so as to obtain early return to function.

The methods used for fractures near the hip have proved successful over many years and should be applied to all injuries keeping an elderly patient in hospital. Fractures of the lower third of the femur often involve the condyles, which may be split, disrupting the knee joint. If treated conservatively this injury needs 6–12 weeks in traction or plaster, in bed, and with all the difficulties inherent in this method of treatment in a feeble geriatric patient. But if a pin and plate with a compression screw are used the fracture is fixed and the condyles pressed together so that both movement and weight-bearing can be started early. Such patients rarely need to be in hospital even for as long as those with fractures near the hip; if they are it is because of general decrepitude rather than the fracture.

Fractures of the shaft of the femur are common in the elderly, and the operation of intramedullary fixation should always be done even if the fracture appears not to lend itself to the indications as applied to young people. The insertion of a nail from above is often difficult and usually needs open reduction. By altering the approach a much simpler method can be used. With the patient anaesthetized in the usual way the knees are bent over the end of the table and a parapatellar incision made into the knee joint. A hole is made between the femoral condyles and through this a guide wire can be passed up the femoral shaft; often by simple manipulation it will enter the proximal fragment. Should this not be so a small midline incision in the thigh allows 2 or 3 fingers to be inserted, the fracture to be manipulated, and the guide wire to be passed up satisfactorily. A suitably sized intramedullary nail is

then inserted without reaming. Should the nail be too loose a second nail can be stacked within it to hold the fracture site tight. A small rebate is made round the hole between the femoral condyles so that the bone cement, when inserted, will grip firmly. The debris is taken out of the knee and the wound closed. Walking with weight-bearing is allowed the next day, using a frame. This procedure may cause some damage to the knee, which would be unacceptable in a young adult but is of no consequence in the old.

Fractures of the tibia are often difficult and disabling. They also must be treated, when possible, by internal fixation. It is not generally appreciated that the upper 2 or 3 inches (5–8 cm) of the tibia are angled in such a way that the anterior edge of the tibial plateau is over the centre of the tibial shaft. This means that, as for the femur, an intramedullary nail can be slipped down from the knee with great ease without even having to open the joint cavity.

Fractures of the ankle can disable old patients and keep them in hospital because they are unable to manage at home with a heavy walking plaster. If sound internal fixation is secured with screws or other devices the patient often needs no plaster and, because of the limited activities of old age, is able thereafter to walk and manage at home with supportive bandages only.

In general all fractures should be fixed or immobilized so that pain is removed, because the latter can lose an old person independence; if it lasts too long return to function and to home may not be possible. Thus a fractured shaft of the humerus may need immediate internal fixation if pain and disability are sufficient to cause admission to hospital. It is quite sufficient to drop an intramedullary pin down the shaft, approaching the upper end of the humerus through the anterior fibres of the deltoid. Only occasionally does open reduction have to be done as well.

Metastatic deposits

Never should an old patient be allowed to die in pain or disability from metastatic deposits when a bold attack might give him a quality of existence compatible with enjoyment of life for his last few weeks or months. Such

fractures near the hip can be treated in exactly the same way as ordinary fractures, but sometimes the plates or replacements have to be very long to grip sufficient healthy bone. Fractures of the shafts of long bones can be dealt with by intramedullary nailing. A really rigorous and ruthless orthopaedic attack should never be considered too severe or dangerous; the alternative is heavy sedation until death in most cases, or at best a bedridden existence.

Paraplegia

Metastatic deposits or other lesions of the spine causing paraparesis or paraplegia must be treated as a surgical emergency. No time should be lost in doing long or involved examinations but myelography carried out immediately to determine the level of the block—if it is indeed such that is causing the paraparesis—with a surgical decompression to follow. The myelography must be done first because sometimes collapse of a vertebra from a secondary deposit may obstruct the blood supply which in turn has caused the paraplegia. Even if a complete paraplegia is of several days' duration—with incontinence for more than 24 hours—decompression will improve the well-being of the patient, even though it will not benefit to any extent the paralysis of bladder or limbs, because it relieves pain, particularly in the lumbar spine when accompanied by plating, it makes nursing and therefore the care of the skin much easier, and finally it reassures the patient and relatives that all that was possible has been done.

There is one final point. For a paraplegic to be left lying in bed to die in pain, doubly incontinent, and with no hope is a blow to human dignity hard to withstand. But if he knows that every chance has been taken and that no surgical stone has been left unturned the patient and his relatives show greater fortitude in bearing this grievous affliction. \

Elective procedures

Many old people lose their independence through loss of the ability to keep going at home because one or more joint has failed. There must therefore be no hesitation in using any method available to restore the function of the patient as a whole so that independence is maintained. It is strange that whereas a

painful hip with osteoarthritis takes a long time to cause failure of the patient as a whole, a painful knee will jeopardize the existence of an elderly person, who becomes unable to manage a household because of this one failing joint. Total replacement is then urgent. In the same way the rheumatoid patient with a hand that is becoming more and more crippled may become unable to look after herself because dressing is impossible, buttons cannot be done up, and zip fasteners become unfastenable. Such patients must be treated quickly lest, having lost independence, they fail to regain it.

Today there are many and varied joint replacements and, in the elderly, it is very rare to have to do any form of arthrodesis of a joint other than distally in a limb, when it may be of value. In the foot, however, partial ablation or filleting of a toe is both quicker and as acceptable as the methods that are normally needed for the younger patient.

ANAESTHESIA FOR THE AGED

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The problems associated with anaesthesia in the aged become of greater importance to anaesthetists as the proportion of the population over the age of 65 increases. The magnitude of this increase has been given emphasis by Sir Ferguson Anderson in his introduction to this symposium. There is, of course, a special regional factor in the increase, as shown in the accompanying table.

Amputations

There is no need for a geriatric amputee to languish for weeks without a limb, even if it is but an early walking aid. There is good evidence that healing of the limb and the function of the patient are thereby enhanced. Again the important feature after amputation is to see the patient walk. That it may only be as far as the garden gate or the local inn is immaterial; independence has been regained.

Conclusion

Provided the surgeon recognizes that without walking the patient is doomed to a loss of independence, then he will realize that to achieve walking is the most important aspect of rehabilitation in the elderly. Also he will realize that if walking is lost for any length of time it becomes difficult to achieve thereafter. If a geriatric patient continues to walk almost without interruption during the sojourn in hospital all will be well, because in the elderly return to function is return to independence.

It is appropriate to refer in this communication to anaesthesia for orthopaedic and genitourinary procedures since the previous papers have been especially concerned with these. Some idea of the numbers presenting for such operative treatment may be gained from these figures from the Royal Devon and Exeter Hospitals for 1973.

Population structure 1971 (figures from census reports) Exeter Health Care District (total population 292 080).

Age	Absolute	Exeter Health Care District (percentage of total)	Standard geographical SW (percentage of total)	England and Wales (percentage of total)
65-75	32 310	11.9	9.7	8.4
65 +	52 000	19.1	15.3	13.0
75 +	19 690	7.2	5.5	4.6