Organic Mental Impairment in the Elderly.

Implications for Research, Education and the Provision of Services.

A REPORT OF THE ROYAL COLLEGE OF PHYSICIANS BY THE COLLEGE COMMITTEE ON GERIATRICS.

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SUMMARY

The Dementias (I.1)

In this report the following definition is used: ‘Dementia is the global impairment of higher cortical function including memory, the capacity to solve the problems of day-to-day living, the performance of learned perceptuo-motor skills, the correct use of social skills and control of emotional reactions, in the absence of gross clouding of consciousness. The condition is often irreversible and progressive’.

The pooled data from several cross-sectional surveys indicate that 5-7 per cent of the population over the age of 65 have dementia; the prevalence rates rise from about 2 per cent at the age of 65-70 to around 20 per cent in those over the age of 80. Case register studies of newly reported cases reveal an annual incidence of 1.5 to 5 per 1,000 population over the age of 60.

As originally described, Alzheimer’s disease referred to a clinical type of presenile dementia, but similar symptomatic features and pathological changes are found in the older age groups. Although the problem of the diagnostic separation or unity of senile and Alzheimer’s dementia has not yet been resolved, this, the commonest form of dementia in old age, will be referred to as Senile Dementia of the Alzheimer Type (SDAT).

Senile Dementia of the Alzheimer Type (SDAT) and Multi-infarct Dementia (I.2,3)

The impairment of memory and cognitive functions which are characteristic of dementia may not at first be apparent on clinical examination. It may be difficult to distinguish the forgetfulness associated with ageing from that occurring in the early stages of a dementing process. Progression of the disorder is usually accompanied by marked behavioural changes and deterioration in the personality. Depression is one of the most common symptoms and it may be difficult to make a diagnostic differentiation between depression (causing ‘pseudo-dementia’) and true dementia.

The later stages of SDAT are associated with a variety of neurological changes. These abnormal signs may be attributed to vascular lesions of the brain and they can lead to an erroneous diagnosis of vascular (multi-infarct) dementia, which is now believed to be much less common than SDAT. In multi-infarct dementia there is often step-wise deterioration, perhaps an episode of hemiparesis, and fluctuation in the mental state associated with lability of mood and emotional incontinence, although the personality is usually well maintained. In SDAT the characteristic feature is atrophy of the brain and enlargement of the ventricles; the weight of the brain may be reduced from 1,200-1,350 g to around 1,000 g. The frontal and temporal regions are most affected. Nerve cell loss is excessive, and greater than that occurring in non-demented subjects of similar age, especially in the hippocampal region where memory processes are consolidated.

Biochemical studies of postmortem and biopsy tissue in SDAT have shown that there is a marked reduction in the activity of the enzyme responsible for acetylcholine synthesis (choline acetyltransferase) and this has been related to the degree of histopathological damage and the mental test score of the patient. Although there is a major involvement of the cholinergic system in SDAT, other neurotransmitter systems may also be affected.

Confusional States (I.4)

An acute confusional state may be the presenting symptom of the development of physical illness in an old person. In contrast to dementia, the mental changes are commonly associated with general disease, metabolic disturbances, or drug toxicity, rather than with disease in the brain itself. The classical features are clouding of consciousness and a fluctuating level of awareness. Defects of short-term memory may be accompanied by impairment of recall from long-term memory and by visual hallucinations and misinterpretations.

The common occurrence of acute confusional states in old age can be related to the greater vulnerability of the ageing brain, and this vulnerability is enhanced in those already suffering from degenerative brain disorders such as dementia and Parkinsonism. Hearing or visual disabilities can predispose to confusional states. There are well-recognised associations between confusional states and many physical conditions. There is, however, little understanding of the mechanism of production of the mental disturbances. Although confusional states represent an unfavourable complication of physical disease in old age, the prospects for mental recovery and for discharge from hospital are good for those surviving the initial illness.

Clinical Diagnostic Procedures (I.5)

Diagnostic procedures are required to distinguish between confusional states, dementia and pseudodementia, to recognise focal cerebral lesions presenting as dementia and to distinguish between SDAT and multi-infarct dementia. There is, however, a need for the careful assessment of the value of screening techniques, especially those used in the routine investigation of potentially treatable causes of dementia, owing to the low prevalence of the conditions when applied to unselected patients. Similarly, neurological investigations, although of undoubted value when there are specific clinical indications, need critical evaluation as screening tests.

Psychological Assessment (I.6)

Psychological assessment is required to differentiate between dementia and other conditions producing mental changes, to measure change in demented patients and to make decisions in relation to management.

Present methods of measuring the amount of intellectual decline that has occurred from premorbid levels are not sufficiently accurate for use with individual
patients. Sensitivity and a high degree of test-retest reliability are characteristics which are required for short-term studies of the evaluation of drugs and for long-term investigations of the rates of decline in dementia and normal ageing. The problem of measuring change prospectively has not received the attention it deserves. A simple mental test score can be of practical value in making decisions about management.

Therapeutic Possibilities (I.7)

Although there has been considerable progress during the past decade in elucidating the biochemical disturbances in SDAT, a rational basis for therapy is only beginning to emerge. Attempts have been made to correct the defects in cholinergic neurotransmission known to occur, but so far with very limited success. The use of cerebral activators and of cerebral vasodilators has been similarly disappointing. For the better management of patients there is need for research into the fundamental causes and also into agents which are effective in symptom control.

Present Organisation for the Provision of Health Care (II.1)

The presence of dementia in a person living at home makes large demands on domiciliary services and for residential and hospital care. Those suffering from dementia spend four times as long in hospital (often within general or geriatric wards) as mentally normal people. Old people with mental disorders use a wide range of hospital services and they are often admitted as emergencies because of inadequacy or breakdown in domiciliary services. The dangers of misplacement are avoided by good assessment complemented by prompt transfer.

General practitioners, supported by district nurses, health visitors and the social services, deal with most problems presented by mentally ill old people without specialist referral. The strength and quality of support available from family and neighbours governs the extent of care that can be given. Those living alone receive the greatest social service provision but there is a case for providing more support for those living with their children since there is a greater chance of retaining them in the community. A readiness to seek out problems before a crisis occurs and to respond promptly to patients' needs is essential for effective domiciliary care. General practice is the focal point for the mobilisation of resources but its present organisation, mostly as a patient-initiated service, is not best suited to achieve this aim.

Requirements for a Comprehensive Psychogeriatric Service (II.2)

During the past twenty years there has been a shift in emphasis from predominantly institutional care to community care. A comprehensive psychiatric service for old people should be able to provide continued care for people referred to it, wherever they require it.

Both the Department of Health and the Royal College of Psychiatrists have recommended that at least one consultant psychiatrist in each health district should take responsibility for providing a service for the elderly, and currently between a quarter and a third of health districts have consultants with old age psychiatry as their main interest. Essential to such a service is the establishment of a Psychogeriatric Assessment Unit (with approximately 15 beds per 250,000 total population), preferably in a District General Hospital. The successful operation of the assessment unit requires close collaboration between medical staff serving the unit. Nursing care in the unit must be provided by psychiatrically trained nurses. Continuing care beds for the elderly with severe dementia are essential for any psychogeriatric service, and 2.5-3 beds per 1,000 population over the age of 65 are required. Psychiatric day hospital care is often an alternative to permanent hospital care for demented old people with families who are able to provide care for most of the time.

The responsibilities of the post of psychiatrist with special responsibility for the elderly must be matched by the resources to carry out the task as described by the Royal College of Psychiatrists (Appendix 1).

Educational Aspects (III. 1.2)

Mental disorders are an integral part of ill-health in the elderly and knowledge of their presentation, diagnosis and treatment is essential for effective management of the older patient.

At present many elderly patients with psychiatric disorders are inappropriately managed. Some of the defects of the occasional observer can be overcome by involving all members of the therapeutic team in diagnostic and management decisions. Psychiatrists with special responsibility for the elderly should fulfil a vital educational role by providing opinions of diagnosis, prognosis and treatment, by educating medical and nursing staff, and by providing advice to social service departments, especially in relation to residential care.

Knowledge of the advancing subject of psychopharmacology is essential. The large number of drugs available calls for considerable skill and caution in their use since the elderly are particularly sensitive to their adverse effects. Only rarely do drugs and physical treatments provide a complete solution to a psychiatric problem and they must complement and not supplant psychotherapeutic and supporting skills. Innovative therapeutic procedures are being developed which involve psychologists, occupational therapists, physiotherapists and nurses, together with relatives, social workers and volunteers.

Implications for Education (III.3)

The high prevalence of organic mental impairment in the elderly and the need for the majority to be cared for in the community present one of the most pervasive social health problems of our generation. There has been little systematic effort to prepare the public or the health professions for their role in meeting the needs of the mentally impaired elderly. In the education of non-
professionals there is need for the Health Education Council and other bodies to foster a general awareness among the public of the existence of the problem, and for intensive courses for people with key roles in organisations concerned with the elderly.

Many members of professional groups were trained during a time when the problems of the elderly were even less regarded in educational curricula than they are now. Much needs to be done in updating professional educational programmes. The consultant psychiatrist with special responsibility for the elderly should play a major role in the teaching of old age psychiatry to all doctors in training. A comprehensive index of relevant subjects that can be used as a guide in drawing up modules for education in training is given in Appendix 2. The consultant psychiatrist, in collaboration with appropriate tutors, should also be responsible for establishing educational programmes for nurses, members of the rehabilitation professions and social workers.

At present the major obstacle in implementing these educational proposals is the lack of established posts for teaching. Priority must be given to increasing the number of posts in geriatric psychiatry at various levels of seniority especially in those teaching centres where an efficient psychogeriatric service already exists.

INTRODUCTION

The demographic facts of an ageing population in Great Britain are now well known. The consequence that the rising numbers of the over 80s in particular will produce a very large increase in patients suffering from organic mental impairment is also becoming recognised. However, there is much less awareness that the effects of this increase will impinge upon the practice of all branches of the medical profession caring for elderly patients and cannot be regarded solely as the responsibility of psychiatry.

The chief disciplines outside psychiatry to be affected are those of general practice, geriatric medicine and general medicine and, in surgery, orthopaedics and ophthalmology. However, no major specialty other than paediatrics and midwifery is likely to escape and some knowledge of the syndromes of mental impairment in the elderly is essential for all who treat elderly patients.

Those effects of organic mental impairment which are not primarily psychiatric in presentation are borne in hospital practice mainly by the medical specialties. It is appropriate, therefore, that the Royal College of Physicians should produce a report dealing with the present knowledge of the aetiology and presentation of various syndromes and indicating the directions for future research. The implications for the provision of health care, and the need for education, involve numerous disciplines, including many outside the medical profession.

In hospital practice many physicians regard memory loss, incapacity and loss of control as characteristic of elderly patients. Though such an inappropriate view of the elderly at large, drawn from a highly selected group of hospital patients, is understandable, it can lead to a nihilistic approach to the problems of organic mental disorder in an ageing population.

The prevalence of dementia in the elderly can be looked at in two ways: on the one hand, nine-tenths of those aged over 65 and almost 8 out of 10 of the over 80s remain unaffected, in contrast to the expectations engendered by experience of the hospital in-patient populations. On the other hand, between 5.0 and 7.1 per cent of the over 65s have dementia, with prevalence rates rising from about 2 per cent at ages 65-70 to around 20 per cent at ages over 80.

These prevalences have major implications for health services, e.g. in England and Wales in a health district of total population 250,000, 35,750 (14.3 per cent) are now aged 65 and over of whom between 1,800 and 2,500 suffer from moderate or severe dementia, the vast majority being among the over 80s.

The current DHSS guidelines for the provision of long-stay psychiatric hospital beds for these patients (2.5-3 beds per 1,000 population aged over 65) yields figures of between 90 and 115 beds for such a health district. In addition, one-third of continuing care geriatric beds in most districts are occupied by patients with dementing illness[1]. Local authority residential homes designated for the care of the elderly mentally infirm are few and, although many 'ordinary' residential homes contain a proportion of demented patients, it is thought that only one-sixth of all elderly patients with dementia is in any form of institutional care[2]. A health district of 250,000 total population therefore supports between 1,500 and 2,100 moderately or severely demented elderly people at home.

Over the 12-year period between 1976 and 1988 the population aged 65 and over is projected to increase by 7 per cent nationally, but this conceals an increase of 25 per cent in the over 75s, who will then form 6.4 per cent of the total population—16,000 in a health district of 250,000. Approaching one-fifth of these, 3,000, will suffer from dementia. The major burden therefore falls on the community, where the chief differential diagnoses of apparent dementia are senile dementia of the Alzheimer type (SDAT), confusional states, and multi-infarct dementia with its characteristic variability. All cause stress which may be insupportable in families otherwise often prepared to tolerate quite severe degrees of physical disability in their aged relatives.

There is little prospect of a large increase in institutional provision for organic mental disorder in the
elderly. The increasing numbers of people affected will have to be treated in the community where more than four-fifths of those over 85 years old reside in private households. The creation of an effective service for these patients is a matter of urgency: the maximum expansion in the numbers of the very elderly will take place within the next decade and a slower rate of increase will continue until well into the early years of the next century. Every health district will need an effective and comprehensive service, hospital-based to ensure correct initial diagnosis, but with its emphasis in the community to give support to the families providing most of the care.

The need for such services carries wide implications for the training and education of all in the health professions, the majority of whom find themselves at some time dealing with elderly patients with organic mental disorder. Education should start with relatives, friends and neighbours in the community where there needs to be a much wider understanding of the needs of the elderly mentally impaired and a knowledge of those services that are available for them locally, and hence a greater tolerance of their problems. In particular, people with key roles in voluntary organisations need to be fully informed both of the problems and of the possible solutions. The need for all professionals working with the elderly to understand the impact of mental impairment is self-evident. The opportunities for education are widespread but have yet to be fully exploited.

While the major expertise and the source of planning advice will lie with psychiatrists with responsibility for the elderly (the great majority of whom are members of the Section for Psychiatry of Old Age in the Royal College of Psychiatrists), all who treat elderly patients must be aware of the needs in this field. Research into the causes of dementia and so into its prevention and treatment is of the greatest importance: no existing drugs, for instance, influence the course of established SDAT. Equally there is a need for research into the best patterns of care for elderly people with dementing disease, and into the most effective means of educating, in their appropriate management, all who come into contact with them. However, the resources need to be deployed now to assist those families caring for demented relatives and to look after those patients who lack such care.

This report is written mainly for the medical profession but in its various parts it is designed to be of assistance to all who are concerned with the care of elderly people. The first part summarises the present knowledge of organic mental disease in the elderly, both pointing the way for future research into the fundamental mechanisms and underlining the need for further investigation into the symptomatic treatment of these conditions. The two following parts have much wider inter-discipline implications, being concerned with, on the one hand, the provision of services, from hospital units to community care, and on the other, the urgent need for education of the whole community, lay and professional, in the care of the elderly with organic mental illness.

I. DISEASE PROCESSES, PATHOLOGY, ASSESSMENT AND THERAPY

1. The Dementias

Definitions

The term ‘dementia’ is bedevilled by the many ways in which it has been employed, e.g. dementia praecox, but it is no longer applied to chronic or intractable functional psychiatric disorders impairing intellectual function as it was in nineteenth century psychiatric literature. Dementia also has the problem of its association with pejorative connotations; consequently, alternative terms are constantly sought, both to try to give greater precision and to afford a more euphemistic label. However, it seems reasonable to continue to employ the term dementia while recognising it to be purely descriptive and without specific aetiological implications other than being due to organic disease of the brain as distinct from, for example, functional psychosis.

Examples of definitions of dementia include the following:

(a) ‘A species of insanity characterised by failure or loss of intellectual powers.’ (Shorter Oxford English Dictionary.)

(b) ‘It is made up of intellectual impairment and lessened control of emotions.’ (Aubrey Lewis in Price’s Textbook of Medicine, 1956.)

(c) ‘Irreversible decline in mental functions.’ (Mayer-Gross, Slater and Roth, Clinical Psychiatry, 1960.)

(d) ‘An acquired global impairment of intellect, memory and personality, but without impairment of consciousness.’ (Lishman, Organic Psychiatry, 1978.)
Lishman[3] cautions against using common presenting symptoms, such as social disturbances or emotional upsets, as diagnostic. Irreversibility, though the general rule, is not a necessary feature of the definition of dementia, as exceptions already exist (e.g. post-traumatic, occult hydrocephalic, myxoedematous and general paretic dementias). The concept of intellectual decline has been employed in all but one definition, which speaks of ‘mental functions’.

It is in the hope of providing, not a solution, but an operational approach to definition that the following alternative is offered:

‘Dementia is the global impairment of higher cortical functions including memory, the capacity to solve the problems of day-to-day living, the performance of learned perceptuo-motor skills, the correct use of social skills and control of emotional reactions, in the absence of gross clouding of consciousness. The condition is often irreversible and progressive.’

Nosology

The terms Alzheimer’s disease and Alzheimer’s pathological changes give rise to ambiguity. First, Alzheimer’s disease originally referred to a clinical type of pre-senile dementia. This was characterised by dysphasias, other language difficulties, dyspraxias and other gnostic defects at a fairly early stage of the disease. In contrast, senile dementia was seen as having a more featureless course with smooth progressive loss of memory and intellect.

Cohort studies such as that of Lauter and Meyer[4] suggest that various symptomatic features including dyspraxia (*Werkzeugstörung*) are found in all age groups although with diminishing frequency in late onset dementia with Alzheimer’s pathological changes. This suggests that there is little reason to separate Alzheimer’s disease from senile dementia. In contrast, however, genetic studies of large populations in Scandinavia[5] have emphasised a different mode of inheritance for senile as opposed to pre-senile dementia.

The second ambiguity arises because Alzheimer’s disease and Alzheimer’s pathological changes are taken to represent the clinical and pathological aspects of the same condition. However, this may not be the case. Alzheimer’s pathological changes are found in both presenile and senile dementias but also in normal aged subjects, though the importance of the quantitative relationship between clinical features of senile dementia and the extent of the pathological changes has been established by Blessed and his colleagues[6]. There are also other forms of dementia of uncertain and varied aetiology, e.g. Pick’s disease (familial lobar atrophy), the dementias associated with advancing Parkinson’s disease, Huntington’s chorea and other hereditary ataxias, and transmittable agents implicated in some dementias of late life such as Creutzfeldt-Jakob disease.

The ICD classification of dementia[7] has two distinct categories:

290.0 Senile dementia—dementia occurring after the age of 65 in which any cerebral pathology other than that of senile atrophic change can reasonably be excluded.

290.1 Pre-senile dementia occurring before the age of 65 years in patients with the relatively rare forms of diffuse or lobar cerebral atrophy.

Alzheimer’s disease is one of the inclusion terms.

The WHO Scientific Group Report[8] includes senile dementia in the category Atrophic Senile Psychoses:

(a) Mild psycho-organic syndrome
(b) Moderate senile dementia
(c) Severe senile dementia

There are some advantages in adopting this classification as there is no reason to assume that (a), (b) and (c) are consecutive manifestations of the same condition.

Lishman[3], in discussing the problem of the diagnostic separation or unity of senile and Alzheimer’s dementia, states: ‘The correct nosological position clearly remains to be worked out in a comprehensive series of unselected cases’. Two options seem currently available, namely to describe all simple dementias without evidence of other pathological involvement as Atrophic Senile Psychosis, with operational definitions to define levels of severity, or to await autopsy or biopsy and only describe those dementias with neuropathological evidence of Alzheimer’s change as having the senile form of Alzheimer’s disease, regardless of clinical symptomatology. We intend to use the term ‘dementia’ to describe a clinical syndrome of varied aetiology, one of whose causes is senile dementia of the Alzheimer type (SDAT).

Epidemiology

The importance of accurate figures of prevalence cannot be over-estimated since they powerfully condition the physician’s approach to the problem of dementia in old age. Memory loss, incapacity and loss of control are seen by many physicians as characteristic of elderly patients. In hospital and institutional populations such a view is understandable.

Perhaps one of the most valuable results of epidemiological studies has been the awareness created of the high level of function of normal, aged people. This ensures that, in future epidemiological studies concerned with early identification, better criteria of prediction can be evolved by using more stringent criteria. Some of the available data are given in Tables 1-4, fair agreement

Table 1. Prevalence (per cent) of organic brain syndromes by sex[10-12].

| Age | Males N = 1008 | Females N = 1259 | Both Sexes N = 2267 |
|-----|----------------|-----------------|---------------------|
|     | % 1SE of % | % 1SE of % | %       |
| 65- | *3.9 ± 0.97 | *0.5 ± 0.35 | 2.1     |
| 70- | 4.1 ± 1.21 | 2.7 ± 0.85 | 3.3     |
| 75- | 8.0 ± 1.99 | 7.9 ± 1.67 | 8.0     |
| 80+ | *13.2 ± 2.64 | *20.9 ± 2.68 | 17.7    |
| All Ages | 6.2 ± 0.76 | 6.3 ± 0.68 | 6.3     |

1SE = standard error.

*Difference between males and females is statistically significant (P<0.01).
concerning the prevalence of dementia, i.e. 5.0-7.1 per cent, being shown.

Mild dementia is a vaguely defined entity and reported estimates of its prevalence range from 5-53 per cent. Bergmann and his colleagues[9] found that, of those who were suspected of dementia, only one-third progressed to unequivocal dementia over a three-year follow-up period. Conversely, most of those developing dementia had been previously categorised as normal.

Table 2. Prevalence of moderate or severe dementia (%).

| Age | Kaneko [12] | Nielsen [10] | Syracuse Study [13] | Kay et al. [11] Möller [14] |
|-----|-------------|--------------|---------------------|---------------------------|
| 65- | 1.9         | 2.1          | 3.7                 | 2.4                       |
| 70- | 2.7         | 4.0          | 5.4                 | 2.9                       |
| 75- | 11.3        | 7.8          | 9.3                 | 5.6                       |
| 80- | 9.9         | 12.6         | 8.8                 | 22.0                      |
| 85- | 33.3        | 21.4         | 23.7                | 21.8                      |
| All Ages | 7.1      | 5.9          | 6.8                 | 6.2                       |

1 Persons living at home only.
2 Includes some functional psychoses.
3 Age groups 60-69, 70-79, 80+.

Table 3. Prevalence of 'mild dementia' (%).

| Age | Kaneko [12] | Nielsen [10] | Essen-Möller [14] |
|-----|-------------|--------------|-------------------|
| 65- | 44.3        | 4.2          |                   |
| 70- | 62.6        | 12.1         |                   |
| 75- | 55.7        | 23.8         | 16.6              |
| 80+ | 48.7        | 37.1         | 25.5              |
| All Ages | 52.7      | 15.4         | 10.8              |

1 Persons living at home only.
2 Age groups 60-69, 70-79, 80+.

Table 4. Estimated annual incidence per 1,000 of chronic brain syndrome.

| Author and country | Period of study (years) | No. and sex | Average annual incidence per 1,000 |
|--------------------|------------------------|-------------|-----------------------------------|
|                    |                        | 60-69       | 70-79     | 80+     | All ages 60+ |
| Helgason [15] (Iceland) | 2                      | 22,206 M | 25,130 F | 0.8     | 2.6     | 9.4      | 2.3     |
| Adelstein et al. [16] (Salford, UK) | 5                      | 9,228 M | 15,581 F | 1.1     | 2.4     | 6.9      | 1.9     |
| Wing et al. [17] (Camberwell, UK) | 5                      | 6,860 M | 13,000 F | —       | —       | —        | 1.5     |
| Åkesson [18] (Sweden) | 3                      | 2,071 M | 2,127 F  | 0.3     | 4.8     | 8.6      | 2.6     |
| Bergmann et al. [9] (Newcastle, UK) | 2; 4                  | 760        | —        | —       | —       | 15.0     |
| Hagnell [19] (Sweden) | 10                     | 455        | 8.4      | 21.5    | 34.0    | 15.6     |

Remarks:

- Case register study. First ever consultations for Alzheimer or arteriosclerotic psychoses.
- Case register study. First referrals with senile and organic disorders.
- Case register study. First contacts with the register for dementia.
- Census and enquiry method with follow-up. Alzheimer and arteriosclerotic psychoses with constant disorientation.
- Random sample personally interviewed and followed-up. Dementia from any cause.
- Personal interviews with whole population. Incidence of new cases of 'senile psychoses' during 10-year period. Rates given are uncorrected for deaths.

Incidence rates (see Table 4) vary widely, but the major division of results is between those based on newly reported (case register) cases with rates of 4-5 per 1,000 p.a., and those based on random sampling and psychiatric and personal interview, producing an incidence rate of 15 per 1,000 p.a. Major surveys in several countries indicate that SDAT occurs more frequently than arteriosclerotic dementia and is more common in females.

It is suggested that longitudinal studies of large populations using a screening instrument may reveal a variety of significantly different clinical pictures corresponding to different clinical entities.

2. Senile Dementia of the Alzheimer Type (SDAT)

Clinical Features and Natural History

A comprehensive account of the clinical features of SDAT is to be found in standard textbooks (e.g. Lishman, Organic Psychiatry[3]). The impairment of memory and cognitive functions characteristic of this disease may not at first be apparent on clinical examination. This may be due to the fact that the degree of change is too subtle to be revealed by psychological assessment in the absence of pre-morbid quantitative estimations of functioning. Moreover, the patient may often deny the first changes due to anxiety about what they imply or, in some instances, he may be unaware of the loss of cognitive function due to a concomitant impairment of judgement and insight. Thus at this stage it may be difficult to distinguish the forgetfulness associated with ageing from that due to a dementia process. Another early change is the development of a lack of initiative which the patient attributes to 'tiredness' or 'feeling out of sorts' and often he seeks medical advice for physical complaints which, although they have been
well-tolerated in the past, now serve as a focus of anxiety. Thus the initial consultation may be with specialists other than the psychiatrist.

As the disorder progresses, the impairment of memory and other cognitive functions can no longer be denied by the patient or his family. The progression in some instances is unaccompanied by any marked behavioural changes but, more often, it is associated with deterioration in personality, with manifestations of irritability, aggressiveness, anger, restlessness, decline in moral standards, and the indulgence in anti-social acts. Paranoid delusions may also be present, but one of the commonest symptoms is that of depression. Since depression may interfere with performance of psychometric tests, it may be extremely difficult to distinguish diagnostically between depression and dementia. This condition associated with depressive illness has been called pseudodementia[20].

The later stages of SDAT are associated with a variety of neurological changes such as gait and postural disturbances, incontinence, focal weaknesses, abnormal reflexes, dysphasia, dyspraxia and convulsions. These abnormal neurological signs may be attributed to vascular lesions of the brain, thus making the clinical differentiation of SDAT from multi-infarct dementia difficult.

Pathology

The majority of cases of dementia are classifiable as senile dementia of the Alzheimer type, while the minority are the result of vascular disease (multi-infarct dementia). The illness usually runs a slowly progressive course. The brain tends to become atrophied, with enlarged ventricles, and the weight may eventually drop from the expected level of 1,200-1,350 g to nearer 1,000 g or even less. The frontal and temporal regions are usually most affected, the occipital least.

Histopathology. One of the most striking histopathological features of SDAT is the argyrophilic, senile or, as they are now often called, neuritic plaques. These consist of abnormal degenerated nerve cell processes, microglia and extracellular amyloid, which may form the core of some plaques. Electronmicroscope examination shows various organelles and fibrils in the plaques. A second feature of the senile degenerative change is the presence of neuro-fibrillary tangles. These are always prominent in the hippocampal neurones, but are usually also scattered widely throughout other parts of the cerebral cortex, and to a lesser extent in the deep grey matter and brain stem. These tangles appear to be derived from endogenous axonal proteins. In the electronmicroscope they appear as helically paired twisted filaments[21]. It has been suggested that such changes in filamentous proteins might be induced by a virus or a toxic substance such as aluminium, but the evidence for either in man is at present far from convincing. Admittedly, dementia has recently been recognised as a clinical entity in 'dialysis encephalopathy' in which there is raised concentration of aluminium in the brain. In such cases, however, neither neurofibrillary tangles nor other histological evidence of structural change have so far been identified.

Another change is that of granulovacuolar degeneration, which is virtually confined to the pyramidal nerve cells of the hippocampus. Here the cytoplasm of the affected cell contains numerous minute vacuoles surrounding a central granule. A further well-established feature of the ageing brain is the lipofuscin insoluble pigment granules that accumulate within cells. The pigment seems to be derived from lysosomes which fail to digest certain cellular lipids.

Nerve Cell Loss. It is not clear to what extent nerve cell loss is a universal age-associated change, and whether or to what extent it tends to increase in SDAT. In nondemented subjects there appears to be some age-associated loss of nerve cells. Typical degenerative neuropathological changes (plaques, tangles, etc.) are seen in a few neurones, whereas nerve cell loss in SDAT is increased, especially in the important hippocampal region where memory processes are consolidated. There is evidence that SDAT is not simply a form of exaggerated ageing[22]. One of the features of cortical atrophy is the shrinkage and loss of nerve cells, and there may be shrinkage of the dendritic tree, with a decreased density of its spines[23]. The extent of these changes varies greatly from one person to another, and from one part of the brain to another.

Biochemical Changes. Examination of the biochemical composition of the whole temporal lobe in cases of SDAT indicates about a 30 per cent loss, or shrinkage, of nerve cells (compared with controls) at the end point in the pathological process[22]. This would agree with Colon[24] who, using histological methods, reported a 57 per cent loss of neocortical neurones in Alzheimer's disease. Ball[25] has demonstrated an exponential correlation between the density of neurones in the hippocampus and the number of nerve cells with both neurofibrillary tangles and granulovacuolar degeneration.

Thus, where nerve cell loss is severe, as in the posterior part of the hippocampus in patients with SDAT, there is a high concentration of tangles and granulovacuoles. The hippocampus may be considerably more susceptible than other regions of the brain to the degenerative changes of the Alzheimer type. Some nerve cell bodies remain apparently unaffected by the disease process, for normal neuronal perikarya have been isolated from the brain. Despite increases in free lysosomal hydrolase activity in the affected brain, significant deficiencies in total protein and lipid concentration have not been reported, other than can be accounted for by brain atrophy. Some data also indicate a possible defect in RNA metabolism and protein synthesis in SDAT. This may be related to the granulovacuolar changes in neurones and may also account for the presence of paired helical filaments in the neurofibrillary tangles.

However, the question of the aetiology of many forms of SDAT is uncertain. There is some evidence of a neurotoxic factor which can induce tangle formation in human nerve cells maintained in tissue culture. Accumulation of aluminium within neurones could interfere with transcription. In addition, it has been claimed that there is a marked reduction in key glycolytic enzyme activity in SDAT, suggesting that regulation of glucose
metabolism may be impaired. It has also been suggested that an immune mechanism may explain the loss of nerve cells in the ageing brain and in dementia. In the latter, neuritic plaques containing immune complex (amyloid) are found close to blood vessels, suggesting an immunological response, either to autoantigens or to an infective agent. However, there is no evidence of cellular infiltration, altered lymphocyte function in the disease, or changes in humoral immunity.

Selective Loss of Neurones or Synapses. In the case of Parkinson's disease and in Huntington's chorea, assessment of changes in neurotransmitter metabolism in postmortem tissue has been achieved by measuring the residual capacity of neurotransmitters and synthesising enzymes (e.g. DOPA and glutamate decarboxylases). Using postmortem tissue, a search has been made for changes in transmitter synthesising activity which may explain the loss of memory in SDAT. There is evidence that acetylcholine is the transmitter substance primarily responsible for higher mental function within the brain. Catecholamines may also have an important role, while indoles appear to be involved in controlling behaviour. Study of postmortem and biopsy tissue in SDAT has shown that there is a marked reduction in choline acetyltransferase (the enzyme responsible for acetylcholine synthesis) activity which relates to the degree of histopathological change[22], and the mental score of the patient[26]. Using biopsy tissue from cases with histopathological changes of the Alzheimer type, Sims et al.[27] have shown that the synthesis of acetylcholine by the fresh tissue is diminished in parallel with the reduction in choline acetyltransferase activity. For the most part, the post-synaptic receptors appear intact, for a reduction in the muscarinic cholinergic receptor protein is only found in the hippocampus. In SDAT the reduction in the activity of other transmitter synthesising enzymes is not as marked. Reductions in activity of glutamate decarboxylase (probably ascribable to the terminal state of the patient) and reduction of GABA-binding sites have been reported. Reduced dopamine and noradrenaline metabolites have been found in the CSF of some patients with presumed SDAT[28]. There is also an indication of lowered catecholamine concentration in some areas of the brain in some demented patients. However, it is now widely agreed that where characteristic histological changes (e.g. neuritic plaques) are observed, the primary change is a reduction in choline acetyltransferase activity.

3. Multi-infarct Dementia

As its name implies, this condition is due to cerebrovascular disease of a thrombotic, embolic or haemorrhagic nature, based on underlying atherosclerosis. The brain usually shows unevenly distributed disintegration of cerebral tissue, often, but not always, with evidence of large or microscopic infarcts. It is the presence of these which has led to the use of the term 'multi-infarct dementia', now generally preferred to that of 'arteriosclerotic dementia'.

In the clinical history there may be an account of sudden deterioration in mental performance or an episode of hemiparesis. There is often step-wise deterioration and fluctuation of mental state associated with lability of mood or emotional incontinence. There may be localising manifestations such as hemianopia, dysphasia, unilateral weakness associated with increase in tone and extensor plantar responses. There may be characteristic changes in gait or posture, with an apraxic gait resembling the marche à petit pas, or flexion contractures associated with hypertonia. Primitive reflexes such as the grasp reflex may be elicited; other examples are the tonic foot reflex and the sucking or rooting reflex. Oro-facial dyskinesias may be found. Ideational, ideomotor or motor apraxias may occur and can result in profound changes in general behaviour. Hachinski and his colleagues[29] have included some of these characteristic features in a scoring system which can be used for differentiating multi-infarct dementia from SDAT.

4. Confusional States

In contrast to the dementias, the confusional states are commonly associated with general disease or metabolic disturbances rather than with disease of the brain itself. Because of their physical basis, most patients with confusional states are cared for by physicians or by general practitioners. Insufficient attention has been paid to this important group of disorders, which are particularly common in old age. The College's study 'Mental Impairment in the Elderly'[30], which made use of serial mental test scores, indicated that the incidence was high. A quarter of those judged mentally normal at admission showed evidence of a confusional state during the first month of their hospital stay while more than a third of demented patients appeared to have superadded confusional states.

Clinical Features

Classical features of the acute confusional state are clouding of consciousness and a fluctuating level of awareness. Defects of short-term memory may be accompanied by impairment of recall of long-term memory and by simple visual hallucinations or misinterpretations. Variability of the degree of mental impairment is characteristic.

Incomplete clinical pictures are common in elderly patients. Many do not show clouding of consciousness, and hallucinations are infrequent. Less severe confusional states may escape recognition unless orientation and memory are tested, as can be readily done by the use of a short mental test score[31].

Failure to recognise acute confusional states is clinically important, as these mental changes may be the main presenting symptom of the development of a physical illness in an old person. Confusion often takes the place of the physical symptoms, such as pain or fever, which are usual in younger patients.

If the physical basis of a confusional state remains unrecognised and the underlying disease is unremitting, the persistent confusion may be falsely attributed to
dementia and a potential therapeutic opportunity lost. The experience of physicians in geriatric medicine and evidence from longitudinal studies showing 'terminal drop' of mental abilities in the final illness of old people suggest that persistent confusional states secondary to physical illness are common and may account for an inflated estimate of the prevalence of dementias. However, the typical natural histories are very different, dementias showing mental deterioration over several years with physical deterioration only at a late stage as compared with a far more rapid physical and mental deterioration in the persistent confusional states associated with physical illness.

Aetiology

Acute confusional states may result from transient disorders of the brain itself, for example post-epileptic states, transient ischaemic attacks or minor cerebrovascular accidents. However, the vast majority of confusional states appear to be secondary to physical conditions other than primary brain disease, though structural brain disease may be an important predisposing factor. Dementia and Parkinsonism are strongly associated with confusional states while the greatly increased vulnerability of the elderly brain to their development may also be due to age-related degenerative changes. Sensory deprivation consequent upon hearing or visual disabilities also appears to predispose to confusional states.

Many extra-cerebral factors can be implicated in the genesis of confusional states and in many instances a likely mechanism of action can be postulated. Thus we can very readily explain the effects of anoxia (whether due to anaemia, respiratory anoxia or a failure of cerebral perfusion) and of hypoglycaemia, as the metabolism of brain cells is chiefly dependent on oxygen and glucose. Deficiencies of hormones or vitamins can also be supposed to have direct effects on cerebral metabolism, and hypothyroidism (myxoedematous madness), thiamine deficiency (Korsakov's psychosis, Wernicke's encephalopathy) and vitamin B₁₂ deficiency are well substantiated examples relevant to geriatric practice. Folate deficiency may also be important, though the evidence is less strong.

We may suppose that cerebral metabolism is perturbed in a variety of metabolic disturbances such as hyperglycaemia, dehydration, hyponatraemia, hypercalcaemia and acid-base abnormalities which give rise to confusional states. Alternatively, there may be toxic effects on brain cells, as in alcoholism, hepatic encephalopathy, uraemia or hypercapnia. Drugs are particularly important and the adverse effects of drugs known to act on neurotransmitter systems, especially the cholinergic system, are noteworthy—anticholinergic drugs, L-dopa and amantidine all being potent causes of confusional states in old people. So, too, are many drugs known to act on the central nervous system, such as antidepressants, sedatives, tranquillisers, anti-epileptics and centrally acting analgesics. Withdrawal of drugs and of alcohol can also cause confusion, hypnotics (including the benzodiazepines) being perhaps the commonest offenders in current practice.

Body temperature also seems relevant to the development of confusional states. Hypothermia is almost invariably accompanied by confusion. The effects of fever are less certain, as other mechanisms may operate in the febrile patient.

Common Examples of Confusional States in Old Age

The physical conditions most often associated with confusional states in elderly patients are heart failure (congestive cardiac failure and/or left ventricular failure), chest infection, urinary infection and carcinomatosis, though many other numerically less important conditions may be associated with confusional states. In these common clinical examples of confusional states the mechanisms involved are often far from clear. Thus, in the case of heart failure, it is uncertain whether anoxia is the principal mechanism or whether other metabolic sequelae of the condition might be responsible. Chest infections may produce confusion in a number of possible ways—anoxia, hypercapnia, fever and bacterial toxins all being possible mechanisms. Similarly, the mechanisms in urinary infection and carcinomatosis are far from clear. An improved understanding of the mechanisms leading to confusion could lead to improved patient management. This might reduce the morbidity and mortality of confusional states which represent an unfavourable complication of physical disease in old age and one which has a considerable impact on families and nursing staff caring for elderly patients.

As many of the causes of these confusional states are life-threatening, this group has a fairly high mortality. Nevertheless, the prospects of mental recovery and of discharge from hospital are good for those surviving the initial illness[30].

5. Clinical Diagnostic Procedures

In clinical practice, diagnostic tests have the following aims:
(a) To help distinguish between confusional states and dementia (and perhaps also to distinguish both from pseudodementia).
(b) To identify the underlying medical condition responsible for a confusional state.
(c) To identify the rare but potentially treatable causes of dementia such as neurosyphilis or B₁₂ deficiency.
(d) To recognise cerebral tumour, subdural haematoma, low pressure hydrocephalus and other focal cerebral lesions which may present as apparent dementia.
(e) To distinguish between SDAT and multi-infarct dementia; this distinction may become more important if there are useful therapeutic advances.

The distinction between dementia and confusional states is principally from the history and physical findings plus the evidence from investigations such as chest X-ray, routine haematology and biochemical profile tests which may indicate the underlying physical basis of a confusional state. Alternatively, absence of such evidence
might favour the diagnosis of dementia. EEG has not been widely used in this context but has potential value in distinguishing between dementia and confusional states. EEG may have the further advantage of pointing to the possibility of pseudodementia when it is found to be normal in an apparently demented subject.

A number of screening tests can be applied to the search for rare but treatable causes of dementia, e.g. serological tests for syphilis, serum B₁₂, MCV, thyroid function tests. However, because of the very low prevalence of the conditions sought, the practical value of applying such tests to unselected patients presenting with chronic confusion is dubious and needs to be critically evaluated. This is similarly true of neurological investigations such as lumbar puncture, skull X-ray, isotope scans or computerised axial tomography (CT) scans; though of undoubted value when there are specific clinical indications, their value as screening tests is doubtful and requires careful evaluation.

Invasive methods of investigation such as arteriography, cortical biopsy, cerebral blood flow studies using arterial injection of xenon, and air encephalography (now largely obsolete) may be of considerable value in selected patients but could never be acceptable for routine use or as screening tests. Considerable interest therefore attaches to non-invasive techniques capable of giving comparable information. The CT scan has obvious potential which is being fairly actively explored. The emission CT scan has yet to be assessed but has also great promise, being capable of mapping oxygen utilisation separately from its delivery to the brain tissue by the circulation. It might be of particular value in confusional states where metabolic changes are not accompanied by any anatomical abnormality. Total blood flow to the brain is reduced in SDAT, as is the uptake of oxygen and glucose. Unlike the normal, in demented subjects the regional cerebral blood flow (rCBF) shows little if any change in local flow on functional stimulation. These investigations have usually been carried out in conjunction with angiography, and alternative non-invasive methods are required. Monitoring inhaled radioactive xenon gives less precise data but it is possible that combination with CT or emission CT scanning will prove much more effective.

These recently developed methods offer exciting research prospects. Their practical value in clinical work is less certain and, again, there is a clear need for careful evaluation of this before they can be put forward as screening tests.

Tests that might allow a positive identification of SDAT, other than cortical biopsy which is so often unacceptable, are needed. Delayed nerve conduction has been suggested as a point of distinction by Levy and his colleagues[32]. However, even if this difference is confirmed, the overlap with normality is too great for it to be a useful test as it stands and some more discriminating neurophysiological test would need to be developed.

6. Psychological Assessment

A more comprehensive account of the psychological assessment of the patient with, or suspected of having, dementia is given by Miller[33], who also outlines the more important technical factors that need to be taken into account when using psychometric tests in clinical practice. In general terms, psychological assessment can be directed at three issues. The first is the differential diagnosis between dementia and other conditions producing psychological changes. Second, there is the measurement of change in demented patients and, finally, the making of management decisions.

The most common differential diagnosis for which psychological assessment is relevant is that between dementia on the one hand and the functional psychiatric disorders, especially depression, on the other. Here tests of learning and/or memory are the most effective. Many tests are available, such as the Walton-Black New Word Learning Test[34] and the Inglis Paired Associate Learning Test[35]. The most impressive discrimination reported is given by the revised Kendrick battery of tests[36] which uses a simple test of motor speed (the Digit Copying Test) in association with a memory test, the Object Learning Test. The Object Learning Test is simple and quick to administer and has a high level of subject acceptability. These qualities are often not found in the other learning/memory tests used in this context. The various design copying tests, e.g. that of Graham and Kendall[37], also have some diagnostic value but are not as efficient as the tests mentioned above. Their virtue lies in their quickness and ease of administration.

The differential diagnosis between senile dementia of the Alzheimer type and other organic disease of the brain (e.g. toxic confusional states and focal cerebral lesions) is less easy on purely psychological grounds. A neuropsychological examination will typically show a wide range of impairments but with no consistent focal pattern or disturbance of consciousness in dementia. The difficulty is that individual cases may show significant variation from the general rule, so the results should be considered as indicative only.

As far as the measurement of change is concerned, considerable effort has gone into trying to devise means of measuring the amount of intellectual decline that has occurred from pre-morbid levels. Most of the techniques, like the use of vocabulary as an index of pre-morbid IQ and the Wechsler Deterioration Index, are unreliable and not accurate enough for use with individual patients[33]. A possible exception is Nelson and O'Connell's[38] use of reading tests to estimate pre-morbid IQ, which can then be compared with the present IQ to indicate change.

In view of the need to evaluate drugs and other procedures claimed to slow down, halt, or even reverse the process of dementia, it is important to have means of measuring change prospectively. This problem has not attracted the attention it deserves and tests useful in, say, differential diagnosis are often not suitable for this purpose. The matter is considered more fully by Miller[33] but some memory tests and rating scales devised for use with the elderly, e.g. Gildeard and Pattie[39], may be of value.
Another relatively neglected aspect of psychological assessment is in relation to making decisions about management. Since the functional capacities of the patient have a considerable bearing on practical management, appropriate psychological assessment should be able to contribute to this type of decision-making. Again, techniques useful in other contexts may not have a great deal to offer here. Possibly the most useful scales for this purpose are those described by Lawton[40]. The importance of carrying out a Mental Test Score as part of the routine assessment of all elderly patients admitted to hospital has been emphasised by Denham and Jefferys[1] and Hodkinson[31] (Appendix 3). Serial testing[30] is also of value in differentiating dementia from confusional states and in formulating a prognosis.

7. Therapeutic Possibilities

Until recently there has been little cause for therapeutic optimism in senile dementia of the Alzheimer type but the findings of greatly reduced choline acetyltransferase (CAT) concentrations in the neocortex and the selective loss of cholinergic neurones in the temporal lobes in SDAT open up the possibility of correcting by chemical means the defects in neurotransmission. It is theoretically possible to remedy the deficiency in cholinergic neurotransmission (i) by increasing the concentration of acetylcholine in the brain; (ii) by reducing the enzymatic degradation of the existing acetylcholine by the use of anticholinesterases, or (iii) by a combination of these procedures.

In practice acetylcholine itself cannot be given since it is rapidly broken down and when administered intravenously it has serious adverse effects. Thus the technique so far employed is to give a precursor. In several recent studies choline has been administered to patients diagnosed clinically as suffering from SDAT[41-45]. Although the psychometric tests generally showed no benefit from this therapy, in some cases subjective improvement was noted by relatives and nursing staff.

Smith and her colleagues[44] treated 10 patients with SDAT diagnosed clinically by the administration of choline bitartrate (9 g/day) for two weeks and compared the results with two weeks' placebo treatment in a crossover study. Although no significant results emerged in any of the tests used in the psychometric test battery, three patients were considered to be less confused after two weeks of choline treatment. It is also of interest that in three cases of pre-existing urinary incontinence in which cystometrograph studies had shown detrusor instability the incontinence was exacerbated. Furthermore, gastrointestinal discomfort occurred in some patients; it was considered that the dosage of choline was too large and it was recommended that a trial of lecithin should be carried out, since this increases the plasma level of choline more effectively than choline itself. The use of another precursor, deanol[45], has also been suggested since it has been shown to increase acetylcholine concentration in the rat brain.

The alternative procedure of reducing the degradation of acetylcholine by the use of anticholinesterases has been explored in human volunteers. In a controlled study of 19 normal male subjects the slow intravenous administration of physostigmine (1 mg) significantly enhanced the storage of information into long-term memory. Retrieval of information from long-term memory was also improved but there was no effect on short-term memory processes. Smith and Swash[46] have reported the results of physostigmine administration to a 42-year old patient with Alzheimer's disease. A frontal lobe biopsy showed the typical histological changes and the CAT activity was 23 per cent of normal—one of the lowest recorded[22].

Physostigmine did not increase the amount of information recorded but it significantly reduced the number of intrusion errors in the free-recall and cued-recall word lists.

The reduction in acetylcholine synthesis when glucose oxidation is impaired by mild hypoxia, the selective reduction in all glycolytic enzymes involved in hexose-monophosphate metabolism in SDAT[22] and the reduced cerebral oxygen uptake in dementia provide a theoretical basis for the use of some 'cerebral activators' which are believed to improve the utilisation of oxygen and glucose by the brain. Animal experiments have shown that meclofenoxate enhances cellular metabolism, enabling the cell to meet its energy requirements through increased activity of anaerobic metabolic processes, and mitigates the ill-effects due to lack of availability or impaired utilisation of oxygen. Gedye and his colleagues[47], using a double-blind matched pairs, partial crossover design, compared the performance on an automated picture matching task of two groups of elderly mildly demented patients. The treated group all improved with respect to their controls and it was considered that these results warranted further work on the effects of meclofenoxate. Marcer and Hopkins[48], in a double-blind study of the effects of meclofenoxate on memory performance of fit elderly subjects, found that the drug appears to increase the consolidation of new information into long-term memory, but does not affect other aspects of remembering. It was also found that significantly more of the subjects receiving meclofenoxate reported an increased level of mental alertness.

Although there has been considerable progress in elucidating the biochemical disturbances in dementia in the past decade, our knowledge is incomplete and a rational basis for replacement therapy is only beginning to emerge. Attempts at correcting the defects in neurotransmission have met with only limited success, possible reasons for this being—

(a) The neuronal fall-out has reached an advanced stage by the time the clinical diagnosis of dementia is established. The reduction in CAT activity in SDAT is much greater than the neuronal loss from the temporal lobe and at present there is no practical means of detecting the biochemical disturbances which precede the neuronal loss.

(b) Although the oral administration of choline enhances cholinergic transmission in normal animal brains, it has not yet been shown to be effective in brain tissue with diminished CAT activity and this may account for the
lack of clinical improvement in severely and moderately demented patients when given oral choline[26].
(c) Defects in other neurotransmitter systems may be present in SDAT. In a series of patients reported by Sims and his colleagues[27], the cerebral biopsy specimens failed to reveal reduction of CAT activity and the typical histological findings of the Alzheimer type in some cases. In these instances dementia may be the result of a more general degenerative process and the principal defect may be in other neurotransmitter systems.

Most of the drugs which are reputed to improve cerebral function are aimed at the multi-infarc type of dementia. The use of the ‘cerebral vasodilators’ has been disappointing in clinical practice[49]. Some are claimed to be cerebral activators that may improve cerebral utilisation of oxygen and glucose. Yesavage and his colleagues[50] have reviewed the reported trial results; whether the rather irregular benefits they produce in various types of dementia are related to action on neurotransmission, platelet aggregation or both, has not been established.

Despite our present lack of knowledge, it is important to treat clinical symptoms, for example disturbed or restless behaviour, and to manage the associated physical conditions whenever possible. Research into the best means of symptom control is as important in the short to medium term as fundamental investigation of the causes of SDAT is in the long term.

8. Opportunities for Further Research

Recommendations for further research are given in detail in the report of the Medical Research Council on Senile and Pre-senile Dementias[51]. The report emphasises our profound ignorance of the causation of dementias and contrasts this lack of understanding with the importance of the subject in terms of the devastating nature of the illnesses and the enormous size and cost of the problem.

There are several reasons for the scant research interest in this field, including the difficulties in interdisciplinary collaboration between clinicians (psychiatrists, neurologists and geriatricians) and scientific workers with appropriate research expertise. Moreover, there are misconceptions about the nature of the problem; the fact that SDAT is an age-related disease and has certain characteristics similar to those of the natural process of senescence has led many to believe that it is an inevitable part of ageing. There is considerable evidence, however, both from biochemical[22] and genetic studies[5], that the dementias of old age are distinct disease entities and as such merit research in their own right. Longitudinal studies in which the findings in dementia are compared with age-matched controls without dementia will also help to promote an understanding of the age changes in the normal brain.

Of the many possible avenues for further research into dementia we consider that particular attention should be paid to the following matters.
1. **The refinement of techniques used in diagnosis.** The diagnostic procedures for differentiating senile dementia of the Alzheimer type from other dementing illnesses, in particular multi-infarct dementia, are at present unsatisfactory. The frequent occurrence of abnormal neurological signs in old age and the co-existence of the two age-related diseases, SDAT and vascular dementia, have led in the past to an over-diagnosis of vascular dementia.

2. **The development of techniques for establishing the early diagnosis of dementia.** At present the clinical diagnosis of dementia is made on the basis of psychiatric manifestations; at this stage the loss of neuronal function is advanced, with little opportunity for prevention or effective therapeutic intervention. Accurate diagnosis can be achieved by biochemical and histological examination of brain tissue obtained at biopsy, but lack of any proven treatment makes such a procedure inapplicable for routine purposes. It would be useful to search for specific changes in the blood or CSF in SDAT. The possibility of using biochemical findings to define different clinical entities should be considered.

3. **Multidisciplinary studies between clinicians and scientific workers in such disciplines as neurochemistry, neurohistology and immunology.** Studies so far undertaken indicate that this is a promising approach[22,26,52,53]. Investigations into this aspect of dementia are often hampered by lack of precise clinical and psychometric assessment of the patient during life. Moreover, there are considerable organisational difficulties to be overcome, particularly the problem of obtaining fresh postmortem specimens for biochemical studies. There are many areas of fundamental research requiring study, for example, the changes in pattern of cerebral blood flow, and the role of viruses and metals, particularly aluminium, in the pathogenesis of SDAT.

4. **Remedying the defects in neurotransmission.** Since many studies have shown the importance of involvement of the cholinergic system in SDAT, attempts should be made to discover agents which increase the concentration of acetylcholine in the brain or prevent the breakdown of existing acetylcholine. It should be borne in mind, however, that the analogy between SDAT and Parkinsonism, in which elevation of dopamine concentration produces functional improvement, may be imperfect, and it is as yet uncertain whether an increase in acetylcholine levels would have a beneficial clinical effect. Indeed, there is some evidence that acetylcholine in the synaptic cleft may, by its action on pre-synaptic cholinergic receptors, inhibit the formation or release of acetylcholine. Other transmitter systems may be involved (e.g. catecholaminergic or peptidergic systems) and research should concentrate on whether they play a primary or secondary role in pathogenesis.

5. **The design of clinical trials.** There are many problems to be overcome in the design of clinical trials of agents reported to be of therapeutic benefit. These include:
(a) Difficulties in the selection of suitable patients for clinical trials.
(b) The inadequacy of existing psychometric test procedures to detect small changes in cognitive function, or in behaviour, induced by therapeutic intervention. There is scope for development of psychometric tests specifically suited to older patients, especially those based on auto-
imated tasks. It is likely that such automated procedures would provide higher degrees of test-retest reliability, which are necessary for serial measurements and for the conduct of clinical trials on a multicentre basis.

(c) Difficulties in ascertaining whether therapeutic agents produce neurochemical changes and relating these changes to alterations in cognitive function.

6. The natural history of dementias in old age. There is a need for community-based longitudinal studies to provide information on the natural history of dementing illnesses and the way in which this differs from that of the normal process of ageing. Here again progress is hampered by the lack of suitable methods of psychometric measurements.

Until recently, there has been little scientific interest in these aspects of the study of dementia and there is now an urgent need for expansion of research efforts. Even less attention has been paid to the investigation of brain metabolism in the elderly and the disorders underlying the production of acute confusional states. In the absence of samples of brain tissue for biochemical investigation there is little agreement on the way in which research can best be undertaken in the human being.

II. THE PROVISION OF HEALTH CARE

1. Present Organisation

The presence of dementia in a person living at home makes large demands on domiciliary services[54], and for residential and hospital care. Demented people identified in private households spend four times as long in hospital (mostly within general and geriatric wards) as normal people[11]. Relatives, friends and neighbours carry a very substantial burden caring for the demented at home and, without their help, it has been estimated that full domiciliary services for the demented at home would probably cost more than institutional care[55].

Mental Health Services

The past twenty years has seen a change in emphasis from predominantly institutional and asylum care to community care. Assessment and treatment are given wherever possible on a domiciliary or out-patient basis. Day hospital care is used for both short-term and long-term treatment and support. Only the most severely incapacitated are admitted to hospital, and then with the expectation of early discharge in many cases.

Geriatric Services

McKeown[56] showed there was a good deal of overlap between the chronic sickness and mental illness hospitals and it remains the case that probably between 20 and 40 per cent of elderly admissions to both geriatric and psychiatric hospitals have mixed mental and physical disabilities. In active services the dangers of misplacement are avoided by good assessment complemented by prompt transfer. The Department of Health and Social Security has been trying to encourage closer collaboration between physicians and psychiatrists.

Dementia is present in at least a third of patients under the care of geriatricians in continuing care or long-stay wards[1], and, although rarely the sole pathology, may often be the key disability requiring institutional care.

General Hospitals

The elderly with mental disorder use a wide range of general hospital specialist services. Some of these patients present in the accident and emergency department, often ‘after hours’ or at weekends, because of inadequacies or breakdowns in domiciliary or psychiatric services, when they pose considerable problems in care for lack of a specialised service able to help at the time.

The presence of an elderly patient with organic mental disorder in a general ward frequently produces anger and tension, particularly if the patient is not removed expeditiously. Such a patient is regarded as ‘blocking’ a bed which should be used for a more acute case and this attitude is as common among nursing staff as among doctors.

At the same time the rising number of such patients is seen as a threat to the share of resources which can be devoted to various care groups. The resource demands of high technology medicine are difficult to equate with the needs of a dependent group of elderly, economically unproductive and often socially unacceptable people.

There is a strongly held opinion frequently expressed that such apparently tiresome people should be solely the responsibility of the community; a view buttressed by the knowledge that 94 per cent of those aged over 65 are living there[57]. This belief is shared by many of those who provide a general adult psychiatric service, even to the point of denying that a problem exists. Those who hold these beliefs overlook the fact that with finite and probably shrinking resources, the community is as much in competition for them as the most modern hospital.

Primary Health Care

General practitioners, supported by district nurses and health visitors, deal with most problems presented by mentally ill old people, without specialist referral. Most of the elderly people with psychiatric disorder in the community have long-standing chronic illness such as dementia or chronic depression and referral to specialist services is relatively rare and usually a consequence of the inability of the primary care team or family to manage[58].

The Aims of Primary Care. The aims of care of the primary care team may be defined as (i) ascertainment and assessment, especially for the identification of individuals who are at high risk; (ii) surveillance and continuing care, and (iii) prevention.
The Size of the Problem. In the average general practice of 2,500 patients there are approximately 360 patients over the age of 65, of whom 100 are over the age of 75. In areas popular for retirement, the figures are much higher. Prevalence rates from various studies (see Tables 2 and 3) indicate that each general practitioner will care for about 25 patients suffering from dementia, of whom half will be severely demented.

Factors Determining the Need for Care in the Community. The type of housing and the support available are the key factors. Housing occupied by the elderly is often of poor standard, especially in inner cities and in very rural areas, while the elderly living alone in such conditions are those least able to cope with the difficulties. Thirty-four per cent of the elderly live alone; 51 per cent live with a spouse in a two-person household and 8 per cent only live with their children[59]. The strength and quality of the support available governs the extent of the care given. Bergmann and his colleagues[60] have shown that those living alone receive the greatest social services support, in contrast to those living with their children. There may be a case for providing more support for the latter because there is a greater chance of retaining them in the community. The severely demented patient living alone may be more appropriately managed in residential care both as regards the quality of life and the most economic use of scarce resources.

Many elderly people have low expectations of the amount of help to which they are entitled. Mental disturbance will further depress the likelihood of self-reporting of needs. General practitioners need special vigilance and training to be aware of indications, such as altered behaviour, that the need exists. Such findings indicate the necessity for review of practice organisation and training.

Resources and Roles of the Primary Care Team. The role of the general practitioner is first to identify the needs of the patient and then to mobilise and co-ordinate the services to meet them. The present trend towards group practice should assist this role; conversely, the isolation of the single-handed practitioner, particularly in the inner cities, creates problems for its fulfilment.

Since care of the demented involves many disciplines, the composition and efficient functioning of the primary care team is crucial. There is a high rate of attachment of health visitors (79 per cent) and district nurses to general practice[61] but some attachments are nominal rather than functional. District nurses spend the majority of their time visiting the elderly and a high proportion of their clients, about 40 per cent in one study[61], are mentally ill.

In contrast, there is a marked disparity between the care given by health visitors to children and to the elderly. In a related study[61], only 13 per cent of cases seen by health visitors were among the elderly, compared with 65 per cent among the under-fives. The impact of the Court Report[62] will do little to redress this balance. The effectiveness of the geriatric health visitor has already been widely demonstrated. A shift of emphasis in the training and attitude of health visitors would bring enormous benefits to the care of the elderly.

At present, prevention of dementia is not possible. Nevertheless, health education can help old people and their families and neighbours to understand some of the mental changes associated with ageing. Social isolation needs to be avoided, and stimulation, both physical and mental, can help to prevent mental disturbance. The voluntary worker often provides essential support, both materially and psychologically, and is also an effective link with social workers and health visitors. Agencies such as Age Concern and local groups of Mind are especially valuable.

Factors Affecting the Delivery of Care in the Community. General practice has the advantage of caring for a relatively static elderly population and the knowledge of the family often possessed by the general practitioner enables him to assess the total needs of the patient and his family. The elderly accept and trust the familiar figure of the general practitioner and the primary care team associated with him, in contrast sometimes to their suspicion of a worker from a remote and unknown organisation. General practice is an organised focal point for the mobilisation and monitoring of resources which can be used to avert crises or family disruption. There are, however, certain factors which can diminish the effectiveness of the primary care team. In some parts of the country there is a reversion to geographical attachment of nursing staff. This could destroy the reality of a primary care team unless clear-cut lines of communication are established and maintained.

The present organisation of general practice is mostly as a patient-initiated service. The development of this type of service is largely historical but it is often perpetuated by the attitude of the doctor. A readiness to seek out problems before a crisis occurs and to respond promptly to patients’ needs are prerequisites of effective care within the community.

Limitations to what can be achieved in a community setting are as much those of attitudes and tolerance as those of physical resource. It is the burden of coping day after day with wandering behaviour, incontinence or the inability to conduct a conversation, that in the end wears down the most resilient helper. Many such helpers will carry on for long periods if they can be afforded regular relief, by such means as the provision of ‘sitters’, periodic admission, or by day hospital or day centre attendance for the patient. Without such relief community care breaks down in an atmosphere of stress and frustration, and there is often consequent and understandable refusal to receive the patient back after a period of in-patient care, when this is finally achieved.

Important factors supporting the primary care team include the appropriate provision and organisation of hospital beds and residential accommodation, to allow the rapid relief of crises, so maintaining the morale of supporting relatives and their willingness to provide care. Day centres can often provide welcome relief for hard-pressed families.

The general practitioner is the commonest source of referral of the elderly in need to the social services. Good liaison between general practice and social services can therefore be of great value in ensuring effective and
comprehensive care. Liaison needs to be at two levels: at that of the patient or client in need, and at the level of the planning team for district services for the elderly.

Suitable housing is one of the greatest needs of the elderly. Sheltered, warden supervised housing is often in short supply and many elderly people willing to exchange a large family house for a smaller, more convenient house encounter insuperable difficulties.

Local Authority Services

Local authority social services provide a wide range of services for the elderly, and the mentally ill are heavy users of both domiciliary and residential services. The vital home help service and meals on wheels are the two most widely available, but a range of additional support services is provided by most authorities. These range from neighbourhood wardens to day centres, sheltered housing and the provision of aids and adaptations.

Residential homes (Part III accommodation), provided or subsidised by local authorities, house a substantial number of mentally ill elderly people. About half the residents in such accommodation are mentally ill[63], with dementia forming the largest group. Some authorities have specialised homes for the more confused and there is a continued debate about the wisdom of separate homes. There are needs for improvements in residential staff training and close support from psychiatric and geriatric services for all local authority homes. Current levels of residential provision are inadequate in both quantity and quality, and residential care in itself is not a substitute for skilled nursing for the severely demented.

10. The Requirements for a Comprehensive Psycho-geriatric Service

An effective service needs to be able to establish the diagnosis, to treat and to rehabilitate, to return to and support in the community those who can be supported there, and to look after in an appropriate setting those who cannot.

An effective and comprehensive psychiatric service for old people should be able to provide continued care for people referred to it, in the patient's home, a day centre or day hospital, a residential home or a hospital. The needs of old people with dementia change with time and the psycho-geriatric team should be able to take responsibility for the co-ordination of decisions which may involve several other agencies. A major objective in much of the work of a psycho-geriatric team is supportive and educational. It is designed to improve the confidence, skill and coping behaviour of relatives, general practitioners, social workers, physicians and nurses dealing with mentally ill old people[64].

Both the Department of Health and the Royal College of Psychiatrists have recommended that at least one consultant psychiatrist in each health district should take special responsibility for the elderly, and currently between a quarter and a third of health districts have appointed consultants with old age psychiatry as their main interest. It must be acknowledged, however, that few health districts yet have an adequate psycho-geriatric service.

Existing psycho-geriatric services in this country are remarkable for their variety[65]. This is perhaps not so surprising since the service will depend on a series of variables, ranging from the historically available equipment and buildings to the personality and interests of the main driving force (usually initially a single consultant) as well as the structure and needs of the population — urban, rural, and so on.

Although debate continues within psychiatry about the wisdom of developing a distinct specialty of old age psychiatry, there are very strong arguments for supporting the appointment of consultants with acknowledged responsibility for the elderly. At district level, planning of services and communication is likely to be simpler where one psychiatrist has key responsibility, and this should benefit general physicians, physicians in geriatric medicine, social services departments, general practitioners and the patient.

Official Guidance

Provision for the elderly mentally ill in hospitals, in local authority residential homes, and by social services has been the subject of guidance from the Department of Health and Social Security[66-68] and was summarised in A Happier Old Age[69]. The Department assumes that demented old people with significant physical illness or disability will usually be treated in medical geriatric beds or other beds in the general hospital service, and will somehow move to alternative care settings when they have recovered from treatable physical illness. Specific encouragement was given in 1970 to the development of Psycho-Geriatric Assessment Units within Geriatric Departments with approximately 15 beds per 250,000 total population[66]. Comparatively few have been established on this model, although geriatricians and psychiatrists in many districts have used skill and ingenuity to improve collaboration in patient care. A common problem for both psychiatric and geriatric or general medical admission wards is delay in transfer of demented patients to continuing care beds.

Psychiatric day hospital care is a feasible alternative to permanent hospital care for those demented old people with relatives or friends who can provide care for the rest of the time, but it requires a good transport system. Very few services have as many as the 2-3 places per 1,000 elderly suggested by the DHSS[67], and complementary local authority day centre provision for the elderly is commonly insufficient.

The DHSS recommended in 1972[67] that the nondisturbed elderly with dementia requiring residential care should be the responsibility of local authority social service departments and be housed in residential homes. By and large, this has happened in most local authorities but some districts have established separate homes for the more confused, with varying success. All too many districts have experienced delays and demarcation disputes

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over the transfer of demented old people between residential and hospital care and vice versa.

Aims and Responsibilities

The population to be served has to be defined in terms of geography, age and diagnostic characteristics. Some services aim to respond to all cases of mental illness above a certain age, usually 65 years; others share the referrals of functional mental disorder with colleagues to varying extents. In general, recruitment of staff and morale seem better where the psycho-geriatric team deals with the full range of psychiatric illnesses.

The psychiatrist with special responsibility for the elderly has to argue hard for resources and facilities for a traditionally low status client group. District Planning Teams concerned with the elderly must have a psychiatric contribution and joint planning ventures between the health service and local authority should seek psychiatric advice on schemes for the elderly. For example, experienced advice on the psychiatric needs of at-risk old people in sheltered housing may reduce costly misplacement, with its subsequent distress.

Any new service has difficulties in becoming established and these may be compounded by a lack of appropriate advice being taken. Not infrequently it is thought sufficient to convert an existing post, or a vacancy caused by retirement, in psychiatry to one with special interest in the psychiatry of the elderly, just by altering the title of the post, with very little appreciation of the facilities required. To be successful, a full and careful appraisal of the problems of the district is essential before proceeding. The job description will need to be carefully written, leaving sufficient scope for the successful candidate to exercise his initiative, while at the same time the responsibilities of the post must be matched by the resources to carry out the task as described by the Royal College of Psychiatrists[70] (Appendix 1).

The service should be able to offer ready availability and prompt assessment of the elderly at the request of the general practitioner, other medical colleagues in hospital, including the Accident and Emergency Department, or social services. Domiciliary assessment is favoured by many services, but easy out-patient access and prompt visiting of general ward referrals are also important. Prompt assessment should be associated with rapid implementation of treatment plans involving medication change, day treatment or in-patient admission as required.

Collaboration and Liaison with other Disciplines

Many elderly people with psychiatric diagnoses also have medical and social problems, and the psychiatrist must recognise the valuable roles that physician, social worker, occupational therapist or physiotherapist may have in their management. Effective communication must be established and agreements reached on sharing or transferring care.

Collaboration with geriatric medicine is a cornerstone for a successful service for the elderly mentally ill and many forms of collaboration have evolved. Ideally the catchment area of the two services should correspond. An important feature of many such collaborations is the joint psycho-geriatric assessment unit, situated in, or closely adjacent to, the geriatric assessment unit on the District General Hospital site. The source of the beds for these units, which specialty allocation they should be drawn from, should not be a major difficulty. If the need is identified, mutual interest will dictate the answer in the light of local circumstances and such units need not be large[71].

A most important aspect of the operation of joint assessment units is that of the exit point from unit to home, or to geriatric, psychiatric or local authority social services accommodation, as may be appropriate. No less important in their success is a certain degree of compatibility between the medical staff directly serving the unit. Another major need is for a psychiatrically trained nursing staff, who have great success in caring for the elderly mentally ill.

Co-operation between geriatric medicine and psychiatry of the elderly should also extend to the physical requirements of elderly patients in mental hospitals. These patients, in particular the 'graduates', fall prey to a variety of physical disabilities as the years pass and need regular physical review and treatment of their physical ailments.

In-patient Services

The elderly with organic mental impairment require assessment and acute treatment facilities preferably in a District General Hospital. Psycho-Geriatric Assessment Units, in which patients are under the joint care of psychiatrist and geriatric physician, are likely to be particularly important for those elderly patients with physical illness as well as dementia, but do not provide the only workable model for assessment. In many successful services assessment of most elderly patients presenting as dementia takes place in a specialised psychiatric admission ward, again preferably on a District General Hospital site, with advice from the consultant in geriatric medicine available as required. The Section for Psychiatry of Old Age in the Royal College of Psychiatrists has suggested that one bed per 1,000 population over 65 years is required for this purpose in a district service.

Continuing care or long-stay beds for the elderly with severe dementia are essential for any psycho-geriatric service, and at least 2.5 to 3 beds per 1,000 population over 65 will be required.

The provision of long-stay beds for the elderly with severe dementia was formerly made in general psychiatric wards. If this provision is withdrawn without replacement when a district psycho-geriatric service is created it poses an insuperable problem for the new service. It will be necessary for general psychiatric facilities to be shared appropriately between general and psycho-geriatric services for long-stay purposes.
Beds occupied by non-demented elderly long-stay patients will not provide vacancies at the necessary rate because their life expectancy is substantially longer than for patients admitted with dementia. The majority of these long-stay beds are situated in large, often isolated, mental hospitals and medical and nursing managers face major difficulties in maintaining activity programmes, providing physiotherapy and psychology services and providing high quality primary medical care. With appropriate training and supervision volunteers can play a valuable part in maintaining activity programmes in these long-stay wards.

It must be recognised that the elderly with functional illness require in-patient facilities both for acute assessment and treatment and for continuing or long-stay care. The elderly are likely to use about a fifth of the acute beds allocated to general psychiatry. In some services these beds are integrated with the admission beds for the elderly with dementia, but practice varies. The elderly with functional illness are more likely than the young patients to require long-stay beds and will need access to these beds which are linked with facilities for adequate rehabilitation.

The Organisation of Primary Care

Identification of the population at risk. All practices should possess an age/sex register. It can be constructed from a general practitioner’s own records by his staff, or Family Practitioner Committees can provide the information from their existing records. Some have already done so. Other methods of identification can be used, e.g. coloured markers to draw attention to the records of the over 65s, or keeping their records separately. Computerisation of records may make identification easier.

Ascertainment of Dementia. The identification of the ‘at risk’ population is comparatively easy, but ascertainment of mental impairment is more difficult. A number of practices have conducted surveys of their elderly patients but, with a few exceptions, the emphasis has been on identification of physical illness. Health visitors have been shown to be effective in identifying mental illness.

Wide use of appropriate tests of mental impairment, such as the abbreviated mental test score[31] (Appendix 3) would greatly assist the primary care team. Such a simple assessment of mental health is already used by the majority of physicians in geriatric medicine and psychiatrists with responsibility for the elderly, as a routine part of the clinical examination of every patient. It should be employed by all doctors caring for elderly people, whether in hospital or in the community. An essential point in this connection is the importance of not missing depression in the elderly.

Some would argue that ideally the mental health of all the over 65s and certainly of all the over 70s should be screened; others would comment that such screening would not necessarily lead to any improvement in treatment in the light of present knowledge. In reality, complete case finding is unlikely to be achieved, but any contact with an elderly patient should be used as an opportunity for a brief check on their mental health by any member of the primary care team.

In most successful psychiatric services for old people Community Psychiatric Nurses are playing a most valuable role. These experienced psychiatric nurses can support relatives, advise on medication and help to settle or monitor in their own home disturbed patients already known to the psychiatric service. It must be acknowledged that there has been little systematic assessment of their value in a psycho-geriatric service, and accountability and referral questions have caused anxiety to some psychiatrists and general practitioners. In view of the shortage of trained nursing staff wanting to work in the expanding psycho-geriatric services, at this stage their referrals and accountability are not direct to general practitioners, although the community psychiatric nurse must keep the general practitioner fully informed through well-defined lines of communication.

Surveillance and Continuing Care. After initial case ascertainment, high risk groups can be identified, e.g. those over 75, those living alone, the isolated, the bereaved and those recently discharged from mental hospitals. These groups should receive priority in surveillance, support and preventive measures.

The tendency for concentration of practices and the use of appointment systems can cause difficulties in communication, especially for patients living alone and without a telephone. This emphasises the need for well organised systems of follow-up and careful attention to practice organisation, especially in the training of receptionists to make contact easier, particularly in emergencies. The extension of pilot schemes for the transport of the elderly to practice premises would greatly assist contact.

A close liaison between the general practitioner, geriatric physician, psychiatrist and social services ensures the rapid provision of extra support. It is important that there should be agreed indications for referral to the psychiatrist or the geriatric specialist.

The general practitioner, in addition to his role in primary care, has a part to play in residential and long-stay hospital care. The fundamental medical need of the long-stay patient is for primary care services with an input of psychiatric and geriatric consultant expertise where indicated. The general practitioner by his training and concern for holistic care is well suited to meet this need. When developed, community hospitals could be especially suitable places for care because they would enable the general practitioner to continue to care for his demented patients, after appropriate treatment and diagnosis, close to their homes and relatives. They could also provide welcome holiday relief for hard-pressed families. There is a special place for the general practitioner in the care of the elderly mentally impaired in residential homes. The present policy of having a number of general practitioners attending these homes while preserving the important principles of freedom of choice of the patient, can sometimes cause difficulties in care. General practitioners who have a special interest in the care of the elderly are often aware of the needs of such patients.
III. EDUCATIONAL ASPECTS

1. Introduction

Mental symptoms and disorders are an integral part of ill-health in the elderly and knowledge of their presentation, diagnosis and treatment is essential for effective management of disease in later life. Irrespective of their specialty, all doctors dealing with elderly patients need awareness, knowledge and experience of old age psychiatry in order to provide an adequate clinical service. This is especially so in fields of practice involving large numbers of older patients.

The common categories of psychiatric disorder in the elderly are no fewer than in younger patients. Their modes of presentation are very varied and often occur together with symptoms and signs of physical ill-health. To distinguish psychiatric factors from physical factors is essential, as it is to realise that many psychiatric disorders in older patients can be cured, while others can be effectively managed, and all can be ameliorated.

Consultant psychiatrists, particularly those with special responsibility for the elderly, fulfil a vital educational role by providing opinions on diagnosis, prognosis and treatment of mental disorder in older patients. Some psychiatrists, however, appear to undervalue their contribution but other doctors regard the ready availability of advice to be of paramount importance.

An active psychiatric service for the elderly will provide a valuable role in educating all medical and nursing staff in the importance of and opportunities for improvement in elderly patients with mental disorder. Such a service can make available to elderly patients who would benefit from it the whole therapeutic in-patient ambience of a mental hospital. This includes the vital contribution of psychiatric nurses and the benefit to be derived from participating in active rehabilitation and recreational programmes. Psychiatric wards also provide socially orientated daily routines which cannot be developed to such an extent in general wards because of the different needs of the physically sick.

Another part of the psychiatrist's role is to provide advice to social service departments, especially in relation to residential care. A source of expert advice helps to reduce the stresses imposed on staff and residents involved with behaviourally disturbed elderly people.

The increasing importance of old age psychiatry demands a corresponding increase in educational activities to widen and advance understanding of the subject. The elements of the education necessary vary in emphasis and content with the needs of particular groups of personnel. It is important that the whole medical community should be informed about old age psychiatry so as to foster better awareness of the needs of the elderly mentally ill and more sympathetic attitudes towards them. This should result in a more effective use of resources.

2. Principles of Management

Reaching a Diagnosis

Psychiatric diagnosis may not always be as precise as the diagnosis of physical illness and a descriptive diagnostic formulation may sometimes be more appropriate than precise categorisation. An understanding of the epidemiology and relative incidence of psychiatric disorders in the elderly is as important in stimulating alertness in the clinician as it is in physical disease. Too often all psychiatric symptoms in older people are labelled as 'confusion', which is equated with dementia.

It is essential to develop skills in psychiatric history-taking as a sound approach to diagnosis. Accurate evidence of a patient's behaviour must be obtained by talking to the relatives or close associates. Techniques of simple psychiatric examination need to be learned.

The importance of distinguishing between dementia and confusional states has already been emphasised. Just as important is the distinction of these two conditions from depression, which is the commonest affective disorder in the elderly. It may closely mimic physical disease by causing apathy, anorexia and weight loss. Sometimes the withdrawn mental state may mimic organic mental impairment, known as 'pseudo-dementia'. Paranoid states and personality disorders may give rise to behavioural problems in elderly patients, which can be difficult to manage. Likewise, the over-activity of hypomania may cause difficult practical problems. The possibility of alcoholism also needs to be considered in the differential diagnosis.

Unless psychiatric illness is recognised and treated early, the course of the patient's illness may be prolonged, requiring a great deal of medical and social support which otherwise might not have been necessary. It is noteworthy that multiple pathology occurs in psychiatric illness in the elderly just as it does in physical illness.

General Approach

All too often the elderly are inappropriately handled. The formulation of a management plan is essential. Superficial or impersonal encouragement helps very little in establishing rapport. To treat an old person with sentimental neglect, patting him on the back or giving him fair words which neither he nor anyone else believes, merely increases his feeling of rejection. Listening with thoughtful consideration and demonstrating not pity or sorrow but understanding for his problems creates quite a different atmosphere. The approach to a depressed person of 76 need be no different from that in earlier life. The individual contribution of an enlightened and understanding doctor is often important in determining the pattern of attitudes shown by other staff members. In general, the psychological defences most commonly seen in the elderly in adversity are relatively simple. Thus withdrawal, denial, the projection of unwanted feelings upon others, anger and somatic symptoms are frequent expressions of conflict. The mode of presentation will depend to some extent on the preferred defence mechanisms of the individual. A knowledge of 'life-style' is therefore helpful in deciding whether the feature is a new development or within the patient's habitual reaction.
pattern. The fundamental role which anxiety plays in many organic psychiatric conditions is not always fully appreciated. Thus suspicion, hypochondriasis, hostility, agitation and mood changes of varying degree may all have anxiety as their common substrate.

Communication and interpretation may be hampered by deafness, failing sight or slowness, requiring extra patience and time spent in conversation and explanation. If memory for recent events is very poor, lively social interaction may still be possible by concentrating on events years past and encouraging reminiscence. Approval of efforts made rather than criticism of failures is most likely to achieve results.

In dementia, emotional and behavioural responses may be preserved long after intellectual powers have waned, the patient may understand more than is superficially apparent and his words and actions may have more meaning than is immediately obvious. Thus we may have to try to understand such a person by his actions rather than by his words. We must continually ask ourselves 'Why does he behave like this? What meaning has his behaviour in relation to his present situation?' All too frequently his inability to put his needs into words leads to misinterpretation and misunderstandings that may provoke irritability, impatience or aggressive responses.

Assessment

The basic strategies of investigation which should be followed in every case may be considered under the following headings:

**Phenomena**—the symptoms and signs and the behaviour of the patient.

**History of the illness**—its precipitants, mode of onset, progression and course.

**Physiology**—haematology, electrolyte and other studies where indicated.

**Anatomy**—the presence and nature of any localising signs.

**Psychology**—the patient’s developmental history, his previous personality, the effects of his immediate environment, what we know about his previous intellectual level, and his current level of functioning.

One of the characteristics of the elderly psychiatric patient which may lead us into error is the variability of his behaviour. It is common experience that confusion is most evident in the late afternoon and evening whereas depressed patients are usually at their worst in the early morning. Verbal fluency is often well preserved in advanced dementia. Serial observations in a variety of situations are the key to accurate evaluation.

Some of the defects of the occasional observer may be overcome by involving all members of the therapeutic team in diagnostic and evaluative decisions. The conclusions of such a multi-disciplinary group can be quantified and recorded in the form of Behavioural Rating or Activities of Daily Living scales. If the rehabilitation programme based on a variety of occupational therapies is used as the focus of assessment, the patient’s capacities, variations in behaviour and coping ability can be observed together with the stressing factors and our interpretations of their interrelationship. Performance in a variety of daily living activities provides valuable indices of competence which can give reliable predictive information about diagnosis, prognosis and eventual placement requirements.

**Treatment**

Great advances have been made in the drug treatment of psychiatric disorders in recent years and elderly patients too will benefit from appropriate administration. Some knowledge of the advancing subject of psycho-pharmacology is desirable and of practical value. The large number of preparations available calls for considerable skill and caution in their prescription. The elderly are particularly sensitive to the adverse effects of many of these drugs and usually require to start on small doses. The dangers of long-term administration of psychotropic drugs and the care required to distinguish between symptoms of the underlying disease and unwanted effects requires constant alertness.

Many non-psychiatric drugs cause psychiatric symptoms and may interact with tranquillisers and antidepressants. For those prescribing for the elderly it is best to be familiar with a small number of well-tried drugs and to maintain the patient on as few as possible and on drug regimens which are easy to follow. The continuous supervision of medication is essential. The judicious use of drugs can aid the therapeutic process but sympathetic handling, reassurance and understanding are of prime importance.

Major tranquillisers have been shown to have a valuable function in ‘encapsulating’ the delusional beliefs and thereby normalising behaviour. Depressive syndromes usually respond well to anti-depressant drugs of various types. In the small group of patients who fail to respond after adequate trial or whose symptoms require more urgent treatment, electro-convulsive therapy remains a valuable, safe and swift method of treatment.

Whenever possible, time spent on explanation and discussion of the management plan with relatives or friends is invaluable. In this way understanding, tolerance and support may be improved. In some centres the ‘relatives group’ has been shown to have an important function in promoting insight and good morale.

The natural progression of established brain disease means that continuity of care in some form will be required. The notion of an informal contract with relatives is usually helpful and reassuring to them. In the knowledge that their patient will be supported by monitoring at home, attendance at a day hospital, relief admissions and eventual long-term care when this is finally unavoidable, many families will take on the care of a severely impaired member who would otherwise require institutional care throughout.

It is only rarely that drugs or physical treatments provide a complete solution to a psychiatric problem. Such therapies are to be seen as complementing and not supplanting psycho-therapeutic and supporting skills. A number of innovative approaches are being developed by
contributions from a variety of professions. These include group and individual psychotherapy; behavioural psychotherapy; reality orientation; relative groups and family therapy. These may involve psychologists, occupational therapists, physiotherapists and nurses, together with social workers and volunteers.

Treatment should therefore be firmly based on a general understanding of the interplay of the historical, dynamic, social and physical factors involved in the individual case. Only then will all specific medical and psychiatric measures achieve their maximum effect.

3. Implications for Education

The high prevalence of organic mental impairment in the elderly and the need for the great majority of the afflicted to be cared for in the community makes this group of conditions one of the most pervasive social health problems of our generation. There will be few individuals and families who will not be called upon at some time to react appropriately to problems presented by organic mental impairment and such problems will impinge increasingly on most of the health and social agencies. These inescapable facts have been apparent for some time but there has been little systematic effort to prepare the public or caring professions for their role in meeting the needs of the mentally impaired elderly.

Education for the Non-professional

In many ways the education of the public in general, and voluntary workers and members of the concerned lay organisations in particular, is the most cogent need. Public tolerance of disturbed behaviour and support from community organisations are two of the most important factors affecting the ability of professional health and social services to cope with the numbers of mentally impaired elderly people, which are growing faster than the statutory resources available for them.

The educational needs are at two levels. At the simpler level we require a background general awareness among the public of the existence of the problem and of the need of the elderly mentally impaired for sympathetic, friendly and supportive care. Inappropriate fears that the mentally impaired elderly might be a danger to their neighbours need to be allayed. An awareness of the types of health and social services available and how to obtain them needs to be integrated with some general socially healthy attitude towards the inevitable difficulty in balancing the elderly individual's freedom of choice against the risks that may be encountered through exercising it. From time to time articles dealing with these problems have appeared in women's magazines and elsewhere but in our view there is a need for a more systematic and continuous campaign of public education. To achieve this aim bodies such as the Health Education Council, the health education departments of health authorities or relevant charitable organisations should adopt a specific responsibility for conducting a low key but continuous public educational programme using the entertainment media.

The second level of education for the non-professional groups relates to a need for intensive courses aimed at people with key roles in voluntary organisations concerned with the elderly and those with an indirect but nevertheless important influence on care of the elderly, such as local authority education officers, and clergy. The Open University's course on 'The Ageing Population' has demonstrated both the successful format and the high quality courses of this type can achieve. The Open University has particular expertise in this level of education and could perhaps be encouraged to plan and oversee satellite and abbreviated courses in the field of mental impairment of the elderly in other adult education facilities associated with universities, local authorities or the Workers Educational Association. These courses could also function as the re-orientation programmes for professionals in the health and social services which are referred to below.

Professional Education

Under this heading the education of all professional groups concerned with care for the mentally impaired elderly is considered. The need for attendants in residential homes and for wardens of sheltered housing schemes to be appropriately trained in the management of mentally impaired elderly people is widely recognised, but provision of facilities and opportunities for in-service training is still inadequate in many areas. Initiatives from outside the local or voluntary authorities employing the staff may be necessary to improve standards at a time when economic retrenchment inhibits desirable but non-essential developments within.

Many professional individuals not necessarily possessing a primary interest in age-associated problems will increasingly require expertise in dealing with mental impairment in the elderly. Among the professions particularly involved will be doctors, nurses, physiotherapists, occupational therapists and social workers. Many members of these professions trained during a time when the problems of the elderly were even less regarded in educational curricula than they are now. The provision of re-orientation courses in the problems of old age and of incentives to encourage practising professionals to take such courses would be desirable developments.

Clearly, however, the main priority is to ensure that training programmes for the professions are adapted to the needs of the elderly population. Three main objectives for education in the professions can be recognised. First is the need to inculcate appropriate 'clinical' skills, that is the ability to recognise mental impairment and to react appropriately and constructively to it. Second, the professional needs to be aware of the range and nature of the services available for the elderly mentally impaired so as to avoid the inconvenience and even danger that may befall an elderly person through inappropriate referral or unnecessary delays in obtaining care. The third objective of education in preparation for professional life is to recruit some workers into fields of practice or research particularly concerned with the care of the elderly.

Some progress has undoubtedly been made in adapting
professional educational programmes to the needs of the future population but a great deal more needs to be done. The conservative nature of professional training has a number of origins, not least of which is the fact that if new material is introduced into the modern crowded curriculum something else has to be dropped. The more progressive elements in universities and training schools will need the encouragement of public opinion if the appropriate degree of re-orientation of professional training is to be achieved.

Education of Particular Professional Groups

The implications for education in the psychiatry of old age are very wide and extend to all the health professions concerned with elderly patients. Appendix 2 includes a comprehensive index of relevant subjects that can be used as a guide in drawing up modules for education and training.

1. Doctors

Undergraduate medical students. There are advantages in having a set part of the undergraduate syllabus for the psychiatry of old age, but there are opportunities for teaching the subject in association with other relevant subjects. For example, it could be included in the pre-clinical period: general medical clerking; geriatric medicine; psychiatry; general practice and community medicine.

The teaching of the psychiatry of old age should ideally be the responsibility of a consultant psychiatrist with special responsibility for the elderly. The Education Committee of the General Medical Council has an obvious responsibility in urging the development of medical school curricula to include the subject.

Pre-registration year. Advice and instruction in the problems posed by mentally impaired elderly patients should be readily available to doctors undergoing training in their pre-registration year. This is the time when a doctor first assumes personal responsibility for patient care and it provides very effective opportunities for learning.

General practitioners. Many vocational training programmes for general practice include geriatric medicine and psychiatry. Opportunities should be taken for including experience in the special problems of elderly patients with mental impairment. The subject should also be included in continuing education programmes for general practitioners held under Section 63.

Physicians in Geriatric Medicine and General Physicians with a special Responsibility for the Elderly. It is imperative that adequate training in the psychiatry of old age should be included within the training period. Secondment to specialised geriatric psychiatric units is desirable, as is attendance at courses on the subject such as that held annually by the University of Birmingham.

Physicians in other Medical Specialities. A knowledge of the psychiatry of old age is essential for the effective practice of any medical specialty which includes elderly patients. Encouragement should be given to any trainees in these fields to gain appropriate experience.

Other Specialists, such as orthopaedic and ophthalmic Surgeons, with a high Proportion of elderly Patients. It would be advantageous to the practice of such specialties if adequate training in managing the practical problems of mental impairment in the elderly were available. This could be done by brief re-orientation courses.

2. Nurses

The need for nurses to be trained in all aspects of the care of the elderly is already recognised and the psychiatry of old age is included in the post-basic courses supervised by the Joint Board of Clinical Nursing Studies. Both the long course on geriatric nursing (No. 297) and the short course on the principles of geriatric nursing (No. 940) give adequate emphasis to the problems of mental impairment.

There is also a need for short re-orientation courses for nurses working in departments with a high proportion of elderly patients, such as orthopaedic departments.

3. Rehabilitation Professions

The need for occupational therapists and physiotherapists to have a working knowledge of the psychiatry of old age is manifest, as rehabilitation programmes for elderly patients with mental impairment depend very much on their co-operation and skill. Therapists also play a vital role in the assessment of elderly patients.

4. Social Workers

Social workers involved with the care of the elderly also need a working knowledge of mental problems, as these can very much affect the ability of old people to maintain their social competence. Adequate instruction in the subject should be available in courses at pre- and post-qualification level.

At present the major obstacle to implementing these educational proposals is the lack of established posts for teaching. On the basis of sound practice it is essential that teaching should be conducted in those centres which have already developed an efficient psycho-geriatric service. With few notable exceptions the operation of such a service depends on the enthusiasm and enterprise of a single-handed consultant who cannot be expected to undertake the considerable additional commitment of organising educational programmes for the wide variety of professionals. Priority must be given to increasing the number of teaching posts in geriatric psychiatry at various levels of seniority within academic departments of psychological medicine.

In many respects education is the key to the care of the elderly with organic mental impairment. Resources are vital but, without awareness of the needs, little will be achieved. However, the prospects for future developments in this major field of health care are now promising, with wider recognition of the problems at all levels, and the growing realisation that research is rapidly advancing into the underlying causes, the successful management of symptoms and the organisation of patterns of care.
RECOMMENDATIONS

I. Research into the Causes of Organic Mental Impairment

1. Before the pressing problems of fundamental research into the dementias can be tackled there is a need for refinement in techniques of diagnosis in order to detect the existence of dementing illnesses at an early stage.
2. There is a need for multidisciplinary studies involving more effective collaboration between clinicians and laboratory scientists, in particular neurochemists, neuropathologists, immunologists and geneticists.
3. There should be more thorough investigation of the defects in neurotransmission in SDAT and a search for agents which might be expected to remedy these defects.
4. There is a need for development of more appropriate psychometric tests, especially those based on automated tasks, for the study of the natural history of dementia and for the conduct of short-term and long-term clinical trials.
5. Controlled clinical trials for the testing of therapeutic agents as they become available are required, and attention should be paid to the problems of design of such trials in demented patients.
6. The biochemical disturbances responsible for acute confusional states need to be investigated. Since in many of these patients drugs are responsible for the mental disorder, studies by clinical pharmacologists of the alterations in pharmacokinetics and pharmacodynamics in old age are required.

II. Service Provision

1. A comprehensive service for the elderly mentally ill should be established in every health district. Such a service requires close collaboration and co-ordination between professional and voluntary organisations from the level of the individual patient to service development and joint planning.
2. One or more of the psychiatrists in each health district should have a special interest in the mental problems of the elderly; and one of these should have general responsibility for the arrangements for their care. He should be a member of all planning teams dealing with services for the elderly.
3. The population to be served should be defined in terms of geography, age and diagnostic characteristics.
4. The appropriate facilities to carry out the task must be provided.

5. Primary health care services should be organised to take account of the needs of the elderly mentally ill to:
   (a) identify those at risk;
   (b) recognise those suffering from mental illness;
   (c) ensure good liaison between, and effective action by, the available services.
6. The needs of the elderly mentally ill in the community should be regularly reviewed by departments of social services for the provision of:
   (a) domiciliary services, especially for the support of those caring for elderly demented relatives and including the provision of day care.
   (b) appropriate residential accommodation, which may be in either 'mixed' or 'specialist' homes, but which in either case requires defined arrangements for help and advice from the health services. The training of residential staff in the care of the elderly demented is most important.
7. There is need for continual evaluation of services and for research into the most effective means of providing care.

III. Education

1. The Health Education Council or a relevant voluntary organisation should adopt a specific responsibility for educating the public about the needs of and services for the elderly person with mental impairment.
2. Intensive courses for non-professional groups with special roles concerned with the elderly should be available.
3. Re-orientations programmed for medical, nursing and other caring professions actively involved in the care of the elderly in any setting should be available and incentives provided to encourage their being taken up.
4. The undergraduate training programme of doctors and the training programmes of nurses, social workers, psychologists and other caring and remedial professions, commonly provide inadequate teaching experience in the management of the problems of elderly patients with mental impairment, and the appropriate professional and educational organisations must accept responsibility for remedying these deficiencies urgently.
5. Priority must be given to increasing the number of posts in geriatric psychiatry at various levels of seniority, especially in those teaching centres where an efficient psycho-geriatric service already exists.

APPENDIXES

Appendix 1: Interim Guidelines for Regional Advisers on Consultant Posts in Psychiatry of Old Age

The development of an effective psychiatric service for the elderly is dependent upon the allocation of adequate resources. A good candidate trained in psychiatry for the elderly is unlikely to consider a post where the provision is inadequate.
population which will make the service different from average.

There should be a clear understanding of what facilities are to be allocated to the psychiatrist for the elderly for (i) functional illness service for the elderly, and (ii) dementia service.

The DHSS formulae are:
(i) Functional Illness Service for the Elderly (from within the provision for general psychiatry)
(a) Acute beds  0.5 per 1,000 population
(b) Long-stay beds  0.17 per 1,000 population
(c) Day places (to be  0.65 per 1,000 population

(ii) Dementia Service for the Elderly
(a) Psycho-geriatric Assessment Unit — 12-20 beds per 250,000 population.

This figure is now inadequate because (1) practice has changed from assessment to assessment, treatment and rehabilitation in situ; (2) the proportion of very old people in the population has increased since 1970 (the date of the DHSS recommendation).

A reasonable figure would be:
Psycho-geriatric Assessment Unit — 1 bed per 1,000 population over 65 years. To be on a DGH site.
(b) Psycho-geriatric Long-stay—2.5 to 3 beds per 1,000 population over 65 years.

The equivalent number of long-stay patients in a mental hospital, even though they are over 65 years, will not provide vacancies at the necessary rate. The population should be one of genuine elderly severely mentally infirm patients, i.e. severe dementia.
(c) Psycho-geriatric Day Hospital — 5 places per 1,000 population over 65 years.

Consultant Time

The sessions allocated to old age psychiatry should be seen in the context of the total number of consultant sessions in psychiatry. At present, at least 25 per cent of all psychiatric admissions are over the age of 65. Where an active psychiatric service for the elderly develops, this proportion is likely to increase. For every 10,000 old people in an average community there will be demand for approximately 100 acute psychiatric admissions annually. Because of this high rate of demand and because of the heavy commitment to work in the community, the maximum number of old people for whom one full-time consultant can provide a service will be approximately 22,000. A part-time commitment can be calculated on the basis of 2,000 old people per session.

If an inadequate number of sessions is available to serve the whole of a district's elderly population, inevitably some of the work will remain the responsibility of the general psychiatrists. If this is the case the separate areas of responsibility should be clearly defined by sectorisation. A nebulous commitment to old age psychiatry is easily used by the general psychiatrist as an excuse for refusing to give the psychiatrists for the elderly a fair share of the acute psychiatric facilities.

Non-Consultant Medical Staff

Trainees. The consultant psychiatrist for the elderly should attract 25 per cent of the psychiatric trainees and these posts should be included in a rotational training scheme. The experience available in this field would be useful for GP trainees who might also be attached to the service.

Senior Registrars. Experience in psychiatry of the elderly should be available to all senior registrars on a rotational basis. The rapid expansion of consultant posts in psychiatry of the elderly means that training consultants in this field is a primary task and therefore attempts should be made to obtain a senior registrar post specifically for this purpose.

Clinical Assistants. The service should attract a share of clinical assistant sessions which will reflect the availability of these and the way in which they are used within the psychiatric service.

Secretarial Staff

The secretary attached to a consultant psychiatrist for the elderly will have considerable responsibility for management and liaison. If possible she should be employed as a personal secretary with higher clerical grading. For every 10,000 old people served, 0.5 to 1 full-time secretary will be needed. A day hospital will need additional receptionist/clerk-typist staff if it is to work effectively.

Community Psychiatric Nurses for the Elderly

One to two nurses per 10,000 population over the age of 65.

Teaching Areas

A 50 per cent increase in consultant time will be needed in a teaching area.

There will need to be an increase in all staff if facilities are on several sites.

Other details of the service will be required as follows.

1. The Psychiatric Service

(a) The catchment area (whether or not co-terminous with the old age psychiatry catchment area).
(b) Number of acute and long-stay beds.
(c) Number of sessions of consultant time.
(d) Number of trainees.
(e) Number of clinical assistant sessions.
(f) Number of day hospital places.
(g) Number of community psychiatric nurses.

2. The Geriatric Service

(a) The catchment area (whether or not co-terminous with the psychiatric service for the elderly).
(b) Total number of consultant sessions.
(c) Consultant sessions available to the psychiatric service for the elderly.
(d) Total number of geriatric beds.
(e) Number of geriatric beds on an acute hospital site.
(f) Number of geriatric day hospital places.

3. Social Services

(a) The area served (whether or not co-terminous with the health services and size of the population over 65).
(b) Number of Part III residential places and day centre places.
(c) Number of home and day places for the elderly mentally infirm.
(d) Whether or not any personnel are available with special expertise relating to the elderly and the proposed social work input into the psychiatric service for the elderly.
(e) Number of places available in private nursing homes.
(f) Details of sheltered housing.

4. Administration

(a) Details of the local Cogwheel organisation.
(b) Is there a regional adviser or advisory group in psychiatry of the elderly?

The requirements for a district service with a total population of 200,000 and 30,000 over the age of 65 are:

**Functional Illness**
(a) 15 acute beds
(b) 5 new long-stay beds
(c) 20 day places

**Dementia Service**
(a) Psycho-geriatric unit—30 beds
(b) Psycho-geriatric long stay—75 to 90 beds
(c) Day places—90

**Consultant Time**
15 sessions

**Non-Consultant Medical Staff**
(a) Trainees 25 per cent share of total in psychiatry
(b) Senior registrars 25 per cent of total in psychiatry
(c) Clinical Assistants according to availability and deployment

**Secretarial Staff**
1.5 to 3 secretaries for the functional illness service and the psycho-geriatric unit. Additional secretarial time for the dementia day hospital

**Community Psychiatric Nurses for the Elderly**
Two to six community psychiatric nurses

In a teaching area there should be a 50 per cent increase in consultant time.

The facilities described above are not ideal but are those required to establish a credible psychiatric service for the elderly. Shortage of money at the present time means that promises made in job descriptions are unlikely to be fulfilled in the short-term and therefore a post should not be approved unless facilities are to be immediately available. Health authorities would be unlikely to create posts for surgeons without beds and operating and anaesthetic facilities. They must be made aware that a psychiatric service likewise cannot operate without a basic provision.

Appendix 2: Topics for educational programmes in the psychiatry of old age.

**Gerontology**
Social and cultural aspects of ageing
Theories of ageing
Ecology of ageing
Public and professional attitudes to ageing and mental illness
Generational differences
Social incompetence and adjustment
Patterns of employment and retirement
The implications of social, political and economic policy

**Geriatric medicine**
Anatomy and physiology of the ageing process
Medical syndromes particularly associated with mental disorder
Cerebrovascular disease—stroke and its management
Complications of illness
Techniques of rehabilitation
Models of geriatric services
Geriatric psychiatric collaboration
Accident proneness and safety aspects
Environmental design

**Neurological medicine**
Neuropathology
Neurochemistry and neuropharmacology
Neuropsychology
Neurophysiology—EEG; echoencephalography; isotope scan; CT scan; cerebral blood flow studies
Special neurological syndromes—e.g. Parkinsonism; normotensive hydrocephalus; supranuclear palsy; presenile dementia; tardive dyskinesias; fits and fants

**Psychology**
Psychology of the ageing process
Personality and personality disorders
Learning and memory
Language and speech control
Measurement and diagnosis of disability
Use of rating scales
Effect of sensory deprivation
Psychological techniques in therapy of functional illness
Coping strategies
Behavioural modification and management in dementia
Institutional organisation and its effects

**Psychiatry**
Epidemiology of psychiatric disorders in the elderly
Classification of disorders and investigation
Psychopathology of ageing
Grief and bereavement
Treatment of psychiatric disorder—psychotherapeutic techniques: group and individual; drug treatment; drug metabolism; iatrogenic illness; treatment adherence and compliance
Patterns of psychiatric services for the elderly
Day hospital management
Models of liaison psychiatry
Staff emotions and attitudes

Nursing
Ward management techniques
Community nursing services
Augmented home care
Continuing and terminal care

Occupational Therapy
Recent developments in relation to old age psychiatry

Social Services
Role of social worker and supportive services
Provision and use of residential homes and sheltered housing
Day care
Integration of community care

Voluntary agencies
The scope for the volunteer in hospital and community services
Services provided by voluntary organisations

Research
General aspects of research and funding
Design, methodology and use of statistics
Researchable topics and hypotheses
Current major research projects

Ethics
Quality of life
Legal aspects: testamentary capacity, power of attorney and Court of Protection
Pastoral care
Euthanasia and the care of the dying

Appendix 3: Abbreviated Mental Test Score
(Each question scores one mark)

1. Age
2. Time (to nearest hour)
3. Address for recall at end of test—this should be repeated by the patient to ensure it has been heard correctly: 42 West Street
4. Year
5. Name of hospital
6. Recognition of two persons (doctor, nurse)
7. Date of birth
8. Year of First World War
9. Name of present monarch
10. Count backwards, twenty to one

Scores below 7 closely correspond to those below the lower limit of normality of 25 for the full test[31].

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