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The SINGAPORE FAMILY PHYSICIAN

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THE ADVANCE DIRECTIVE
What is the Family Practitioner's Role?

The advance directive is a document which enables a person to instruct health care personnel on the type of medical care he would like to have, in the event that he is no longer capable mentally of making such decisions, either because of being permanently unconscious, or of being in the terminal phase of an illness[1,2]. It usually specifies that life-sustaining procedures should be withheld or withdrawn, though, less commonly, it may state the reverse, that is, the patient may wish to be kept alive for as long as possible[3,4]. If legally enforced, doctors looking after such a patient are bound to comply with the patient's wishes.

Thus far, the advance directive has been implemented in countries in the West, notably the United States of America, with the passage of the Patient Self Determination Act in 1991. As expected, the bulk of the literature regarding experience with the use of advance directives is from the USA, where it was proposed some thirty years ago, and is largely relevant in most situations, except for certain cultural and religious differences.

What is the Family Practitioner's role with regard to the use of advance directives by his patients? The Family Practitioner, by virtue of his close rapport with his patients, is usually the first professional person the patient consults, when considering such an issue. Patients may have heard of the advance directive, but are not sure of what it is, and how it should influence their lives, especially with regard to medical care in the terminal phases of illness. It is the job of the doctor to explain to the patient the meaning of writing such a document, and the implications thereafter. This may take more than one sitting, and the discussion can range from the very general to the very specific, involving particular examples of different scenarios and treatment procedures that may occur in the future. It was found in the USA that patients preferred the initial discussion to be held in the outpatient setting, and not when they are admitted to the hospital[5,6].

Should the physician initiate such a discussion when the patient has not asked about it? In the United States, physicians are required by law to do so, but this is not yet the situation in Singapore. Doctors may see a need to explore options on future medical care with certain patients, such as those suffering from terminal cancer, and may want to initiate a discussion on the advance directive. It has been suggested that, in order to lessen the awkwardness of the subject, discussions on this should be integrated into the doctors' ongoing dialogue with patients about current health status and future care. Experience in the West showed that most patients actually wanted to discuss their preferences for future treatment[3,7,8,9,10]. Comprehensive checklists with alternative scenarios were proposed by several authors, but were thought to be too confusing and abstract by some other authors[3,11]. It was felt that the most important means of communication with and education of patients about end-of-life decisions was still good, old-fashioned, counselling by physicians, tailored to individual situations and needs.

In addition to explaining to patients about advance directives, Family Physicians should also ensure that the patient understands the nature of the illness, the meaning of the diagnosis, the degree of severity of the illness, and the imminence of death. This is where there may be different reactions with patients from different cultural backgrounds. Some patients may regard this as a taboo subject, others may think that by bringing up this subject the doctor is of the opinion that they are about to die

soon, though this may not be actually the case. Hence much tact and sensitivity are required on the part of the physician when discussing such issues, even with patients who are severely ill.

Having written an advance directive, how likely are the patients to change their minds? This is entirely possible as medical situations, financial and other circumstances, personal opinions and influence of relatives and peers do not remain static over time. As such is the case, physicians should re-examine directives periodically with their patients, to have them updated as and when patients change their minds[12]. Experience to date, indicates, though, that there is considerable stability in patients' preferences concerning life-sustaining treatment[13,14,15,16].

In addition to the counselling and advice that can be given to patients before, during and after the writing of the advance directive, the Family Physician may also be involved in its implementation. While many patients spend their last days in the hospital, many other choose to die at home, attended by their own family doctors. If the patient has been under the care of the Family Physician, then the chances are that the Family Physician will know of the presence or absence of an advance directive. If not, then the physician should enquire as to its existence. One must be cautioned, however, that the advance directive is only a document, written in anticipation many months or even years ahead of the day when it may be used, and the situation at hand may be totally different from the one anticipated, making the implementation of the advance directive difficult, if not impossible. There is also the problem of interpretation of what is written, and different people may have different opinions on how certain instructions are to be carried out. When faced with such a situation, the best recourse the physician has is to discuss with the proxy (the person designated by the patient to act on his behalf), if any, or the people closest to the patient and come to some agreement as to the management strategy. The guiding principles in any situation should be that patient's autonomy in decision making is maintained, and his wishes and the spirit of his instructions are followed as closely as possible.

In the case of patients admitted to the hospital, the Family Physician may still be called upon to liase with the hospital doctors in implementing the advance directive, as he has the trust and confidence of the patient and his family members, and may have been involved initially in the drawing up of the document.

It can be seen, therefore, that in the case of the advance directive, the Family Physician has a vital role to play throughout, not only as educator, but also as counsellor and mentor. As such, the Family Physician should be knowledgeable in this area, and be as open and as unbiased as possible in the advice that he gives. Personal opinions, if asked for, should be explicitly indicated to be so. It is important to reiterate that ultimately it is the patient who should be the decision maker; his autonomy should be respected, and his wishes adhered to as closely as possible, in spirit if not to the letter.

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Dr Hong Ching Ye

COLLEGE MEMORANDUM ON THE LIVING WILL

PREAMBLE

The National Medical Ethics Committee's document on Living Wills was discussed by the Council of the College of Family Physicians Singapore. The views of Council are presented in this Memorandum.

THE LIVING WILL DEFINED AND ITS IMPLEMENTATION

The *living will* may be defined as a statement that directs physicians to act in certain ways during a patient's terminal phase of illness. The physician is instructed not to take measures that would prolong the life of the patient. *(Eisendrath S J and Jonsen A R. The Living Will—Help or Hindrance. JAMA, April 1983; 249:15).*

A *living will* should be implemented only when the patient is terminally ill and is incompetent. Terminal illness has been defined as "an incurable condition caused by injury, disease, or illness, which regardless of the application of life-sustaining procedures, would, within reasonable medical judgement, produce death and where the application of life-sustaining procedures serves only to postpone the moment of death of the patient" *(Wicclair, Ethics and the Elderly. New York:OUP, 1993:42).*

A *living will* should, therefore, NOT take effect:

1. in treatable complications in the course of a terminal illness if the patient is not terminally ill at that stage;
2. when the patient is competent to give an informed consent. The principle of informed consent should never be violated in a competent patient.

Submitted by: The Council
College of Family Physicians, Singapore
26 September 1994

PROS AND CONS OF THE LIVING WILL

Pros

1. The *living will* gives doctors in attendance a clearer picture of what the patient's wishes are. The doctor's informed opinion of the futility of persisting to keep the patient alive may be in conflict with the wishes of the family. If the patient is unable to communicate his / her wishes, then the *living will* will come in useful. The *living will* here has the objective of removing the onerous decision making from physicians and the patients' families.

2. The *living will* has another objective of giving the patient an assurance that his / her dying wish of being left to die in dignity instead of being kept alive despite a poor quality of life will be honoured. This is in line with the notion of patient autonomy.

Cons

1. The *living will* may have limitations that make it difficult for the attending doctor to provide palliative care. A letter in the Lancet this year about a dying patient suffering from the agony of intestinal obstruction whose living will prevented her doctors from relieving her pain is a case in point *(Rosner F. Living wills. Lancet 23 April, 343:1041).*

2. Furthermore, the interpretation of the requests in the living will may actually speed up the demise of the patient who would otherwise live. There is an anecdote in the Lancet this year to illustrate this situation *(Taranta A. Living wills. Lancet 5 Mar 1994, 343:602).*

3. It may also lead to the withholding of treatment prematurely because the will gives a sense of finality to the scenario: there is no reason to try. Yet, we know of cancer patients who have become very ill to rally to medical interventions to go on to live many months of good quality life. Conditions that may behave this way are bleeding episodes, disseminated vascular coagulation, septicaemia and spinal cord compression.

4. The fear that the *living will* may be a slippery slope to the neglect of the patient remains real. There is a need to safeguard the *living will* from being used as an administrative excuse to withhold treatment. This will be an abuse of the living will.

5. The *living will* may be commercially exploited. For example, discounts on insurance premium may be offered to persons making a *living will*. The availability of health services to a patients in medical institutions (e.g. ICU) beds should not be dependent upon the possession of a living will. No one should benefit from a living will except for the patient making it.

6. The *living will* may be exploited for the harvesting of organs for transplantation. On the other hand, the limitations imposed by the individual may preclude life-sustaining measures to maintain the donor's organs until the recipient and the transplantation team are ready.

7. The introduction of the *living will* may turn what has hitherto been a negotiated decision making process between the doctor and the family into a legalistic one. The trust and relationship between doctor and family that have hitherto served various parties well may be eroded as a consequence of the *living will*.

8. The legalisation of the *living will* may allow opportunistic family members to sue the doctor on technical grounds such as the failure to act on the will to the patient's wishes; the delay may be necessary for doctors to sort things out. Also, if the law allows the transfer of the patient to another doctor because the first doctor does not agree that the patient is terminally ill, any delay could also be exploited for legal gain.

DECISION TO LEGISLATE

The decision to legislate should be carefully examined. The living will is an issue of public concern as it involves society and its values. If society, after having fully understood the implications of the living will, deems it necessary for legislation, there will be a need to work out the following:

1. the technical details of the legislation: scope of legislation, implementation of the living will, removing vague terminology, safeguards from abuse, safeguarding the action of doctors when there is uncertainty of the hopelessness of life-sustaining measures.

2. an educational programme for the public, families, patients and doctors on the

   - difficulties, pitfalls, abuses and misuses that can occur and how can these be minimised;

   - understanding that an atmosphere of discussion is important; discussions and deliberations must be part of a clinical process, and not administrative or legalistic ones *(White, Margot L , Fletcher J C. The Patient Self-Determination Act: On balance, more help than hindrance. JAMA, July 1991; 266:3);*

   - understanding that quality of life is a dynamic, multidimensional, subjective construct that changes with time. There are plainly limitations in a single static directive based on a list of procedures and a simple quality of life judgement. *(Advance directives. Lancet, November 1992, 340 (8831):1321-1322.)*

CONCLUSION

The decision to legislate the living will has its pros and cons. If the decision is to introduce legislation, more work needs to be done to clarify the issues raised in this memorandum and to introduce safeguards into the legislature. Legislation should not replace the need for a good doctor-patient and doctor-family relationship. Discussions and deliberations must be part of a clinical process, and not administrative or legalistic ones.

STRATEGY FOR CARING FOR THE ELDERLY IN SINGAPORE

"Grow old along with me,
The best is yet to be"
Robert Browning, in:Rabbi Ben Ezra

The quotation by Robert Browning is the mental attitude that doctors, society and employers need to adopt with regards to ageing and the elderly. Such a mindset will help us help the elderly live their golden years to the full.

It is true that the number of people who are dependent on others for their activities of daily living is expected to increase with age, particularly in those who are 75 years and over, namely, amongst the "old-old". Yet there is place for optimism. It is estimated that at least 85% of those 70 years and older in Singapore today are fully independent.

Another way of looking at the aged

Many classifications have been introduced in the last twenty years to assess the elderly's functional ability. The most well-known and useful ones are the Katz index on activities of daily living (ADL)[1] and Lawton and Brody's instrumental activities of daily living (IADL)[2].

There is yet one more, a Singapore way of looking at the aged. Vasoo in a paper presented in 1993 at a Malaysia-Singapore Forum, titled "Population Ageing in Singapore: Social policies and services response" categorised the elderly 70 years and over into four as follows:

- *go-go* old — those who are independent and working.
- *slow-go* old — those who do not work but lead independent lives; they may live with their children, or on their own.
- *slow-slow* old — those who need assistance in managing their day-to-day life. Assistance can come in the form of meal services, day-care services or nursing care, or a combination of them.
- *no-go* old — those dependent on others for their day-to-day existence; inflicted with a terminal illness or some disability, they live out their last days in hospices or nursing homes.

As a society, we should work to keep the first two categories from falling into the next two categories for as long as we can. For those in the *go-go* category, skills training is the key. It is important that employer and employee have the attitude of life-long learning and retraining to remain relevant to the changing workplace. A wage system that is a combination of seniority- and ability- linked systems may make it less costly to employers to keep older workers employed.

For those in the *go-slow* category the availability of part-time jobs, flexi-hours may allow them to balance leisure and work and tempt them back to work. Work has the beneficial effects of giving the individual self-esteem, confidence and a sense of belonging. The workplace is often also where people build their friendships. This is important in combating loneliness that often besets the elderly. There is therefore a case for even the *go-slow* to work. For the professionals, it is easier to find work e.g., as part-time consultants, trainers, supervisors and so forth. For the blue collar workers, employers may need to work out how they could usefully employ them. Perhaps work at

packaging goods, cleaning services and even as outlet supervisors in departmental stores are possible options.

For the *slow-slow* and *no-go*, family and savings are vital. The well-being of these two groups of elderly will depend very much on society's support, as well as services like day-care, nursing care and hospice care. A multi-disciplinary approach is necessary for caring optimally for these two groups of elderly. Because of the fewer younger people that will be around proportionately as the elderly rise to a quarter of the population by 2020, the elderly of the next century cannot expect their children or other family members to shoulder the burden of supporting them till they die. The middle-aged of today have to start saving for their old age today.

A framework for caring for the elderly in Singapore

Care of the elderly has been given much thought by our Government since the last decade, beginning with the survey of the elderly in 1982. It was found that 97% of those who were 60 years and older were independent. The message in the Report on Problems of the Aged in 1984 was to maintain the independent elderly for as long as possible and to develop a support network consisting of family members and community services to care for the semi-independent and the dependent aged persons. This message was clouded by the debate on two side issues arising from the Report. The first was the idea of raising retirement age to 60 and the second was the idea of compulsory provision of subsistence for the elderly by their children.

In 1988, an Advisory Council on the aged was formed by the Government and headed by Professor S Jayakumar to further study the problems and needs of the elderly as well as to work out a set of programmes to meet their needs. Eight areas for early attention were identified and most if not all of these have been implemented and are also receiving on-going attention. The top four can be said to form the framework for caring for the aged in Singapore. These are:

- to strengthen public education programmes to provide the correct attitudes towards and perspectives in the aged,
- to make maintenance of good health a top priority,
- to encourage workers to work as long as they can, and
- to study the feasibility of providing domiciliary medical service for the frail and bedridden aged.

The remaining four have their focus on operational matters, namely:

- to double the dependent's tax relief for aged persons 55 years and above. This has been implemented since 1992.
- to encourage voluntary welfare organisations to provide places to care for the frail aged in homes for the aged.
- to recommend that Government bear the capital and recurrent costs of voluntary homes in a cost-sharing basis with the voluntary welfare organisations / Community Chest of Singapore.
- to establish a National Council on Ageing (NCA), with Government and community participation, with the Ministry of Community Development. A National Council on Family and Ageing (NACFA) has since been formed. Within it, there is a Committee on the Aged that implements programmes in the spirit of the recommendations of 1988.

Principles in the care of the elderly

The principles in the care of the elderly are:

- time and disease leave their toll on the human frame so that the focus of care shifts from cure to maximising *functional* ability;
- apart from acute episodes, the hospital is not the best place to care for the elderly patient: he or she needs to be managed in the *community*;
- acute illnesses may present *atypically* and generally require *aggressive* treatment;
- primary, secondary and tertiary prevention remain important; and

- one profession in isolation cannot hope to fulfil all the health needs of people in this age group; there is a need for a network of services. Patients themselves and their carers are the centre of this network. The prime carer is usually, but not always, a relative.

Attention to the five "I"s (intellectual impairment, immobility, instability, incontinence and iatrogenic drug reactions), provision of prompt medical care for the unwell elderly as well as appropriate and timely rehabilitation are the cornerstones for keeping the elderly in optimal health.

Developments in geriatric care in Singapore

Strengthening the health care of the elderly is one of the five priority health programmes of the Ministry of Health for the 1990s. There are now two Departments of Geriatrics, one in Tan Tock Seng Hospital and one in Alexandra Hospital. Several nursing homes have also been established.

Over the last decade the following community based services have been developed for the elderly:

- 15 Home Nursing Centres to provide home nursing and rehabilitative care to the frail, semi- and non-ambulant elderly;

- 5 Senior Citizen Health Care Centres (SCHCC) to provide rehabilitative care to the elderly recovering from strokes, health screening services and education of the elderly on the importance of adopting a health lifestyle; an incontinence clinic has been set up in the Tampiness SCHCC.

- 18 Government Polyclinic / OPDs that provide for the initial care of the ambulatory elderly as well as the follow-up of chronic problems. Compared to the general utilisation of GP clinics to Government clinics which is 75% to 25%, for the elderly the ratio is 38% private and 62% government[3].

- Some 800 GP clinics in the private sector that serve the 38% of the total elderly outpatient workload in Singapore. The case mix is different. In the GP clinics, the most commonly seen problems are hypertensive disease, arthropathies / rheumatism, upper respiratory tract infection and diabetes in order of frequency. This compares with the Government Polyclinics where the top four are hypertensive disease, diabetes mellitus, upper respiratory tract infection, and symptoms and ill-defined conditions in order of frequency.

- A charity mobile geriatric clinic, the Hua Mei Mobile Clinic, has been in operation since 1993.

- Health education activities for the elderly are provided as part of the Ministry of Health's Training and Health Education Department's activities to promote healthy lifestyle among the population in Singapore.

Learning and teaching geriatrics in Singapore

A start has been made in learning and teaching geriatrics. The Department of Geriatrics in Tan Tock Seng Hospital takes on the teaching of undergraduates and also participates in teaching Family Medicine trainees in this subject. The Family Medicine trainees also spend a month in Health Care Services of the Elderly during their third year vocational training. The Singapore Medical Journal has been active in featuring papers on Geriatric Medicine. The Gerontological Society of Singapore too has contributed.

The future

It is important that vocational training and continuing medical education programmes on care of the elderly continue to refresh and expand the knowledge base of this growing discipline as well as to hone the practical skills of all doctors caring for the elderly.

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A/Prof Goh Lee Gan

PITFALLS IN GERIATRIC PRESCRIBING

K M Chan, MBBS, MMed (Ind Med)

INTRODUCTION

In a recent study of elderly people living in the community in Singapore, a total of 100 persons above the age of 60 years were interviewed. The mean age was 67 years. A total of 55 (55%) were taking medications during the week prior to the survey. The majority (96%) took their medications from their family physicians, while the rest either bought them over-the-counter (2%), or obtained them from friends (2%). The number of drugs consumed ranged from one to eight types, with an average of three types of medications per person.

The family physician plays a major role in prescribing for the elderly. He has to be very careful when prescribing for elderly patients because they are more prone to adverse drug reactions. As high as 12% of elderly patients admitted to acute geriatric units in the UK were found to be suffering from adverse drug reactions (ADRs)[1]. Deaths due to ADRs usually occur in severely ill patients, and may occur at a rate of 0.9 per thousand patients or 1.12 per 10,000 courses of drug therapy[2].

ADVERSE DRUG REACTIONS (ADRS) IN THE ELDERLY

In a study done in 1966, Seidl et al found that patients over age 50 years were more likely to suffer an ADR[3]. Various reasons were cited for this:

Polypharmacy

The reasons for this may be:

Department of Geriatric Medicine
Tan Tock Seng Hospital
Singapore 1130

1. Many illnesses show an age-related increase in incidence. Blood pressure rises with age, and lowering blood pressure in the elderly (up to 80 years) is beneficial. Congestive heart failure, diabetes mellitus, most types of cancer and Parkinsonism are some examples of conditions that are more common in old age and which need treatment.

2. It is convenient to prescribe a drug for a symptom.

3. Repeat prescriptions may be continued without critical review of continuing need[4].

Multiple pathology[5]

Number of drugs

The incidence of ADRs appears to increase exponentially than linearly with the number of drugs. When two drugs are prescribed, the potential for interaction is 6%. This rises to 50% when five drugs are given, and to 100% when eight or more drugs are given together.

Female sex is at risk, possibly due to greater tendency for them to seek and receive treatment[6].

Use of generic drugs also has a place in predisposing toward ADRs. This is because the generic drug's bioavailability differs from the trademark drug by as much as ± 20%[7].

A previous history of ADR may predispose the individual to suffer an ADR in the future. A positive drug reaction history was reported in 41.7% of patients admitted for an ADR, but only in 26.8% of patients admitted for other causes[7].

The Boston Collaborative Drug Surveillance Program has shown that the drugs most frequently

implicated in ADRs are old and established drugs. They are: digoxin, quinidine, heparin, warfarin, aspirin, dipyrone, penicillin, corticosteroids and oral antidiabetic agents[8].

FACTORS CONTRIBUTING TO DRUG PROBLEMS IN THE ELDERLY

Altered Pharmacokinetics

Predicted physiological changes with ageing result in altered distribution, altered metabolism or altered excretion of drugs. This may result in altered drug action by changing drug concentration at the receptor site.

Absorption:

Changes in the gastrointestinal tract (GIT) take place with ageing and include atrophy of absorptive epithelium. In spite of this, drug absorption has not been found to be significantly altered in old age.

Protein Binding:

Serum albumin falls by 0.1 gm//L/year in old age[9]. This reduced level of serum albumin results in an increase in free drugs, especially drugs that are highly protein-bound, e.g. tolbutamide, steroids, warfarin, phenytoin and NSAIDs. The bound drug serves as a reservoir, with more drug dissociating as free drug is removed.

Drug Distribution:

Drug distribution depends on the lean / adipose body mass ratio and this declines with age. These physiological changes in body composition affect the distribution of water or fat soluble drugs.

Fat soluble drugs like chlorpromazine and diazepam will have a greater volume of distribution, therefore producing a longer elimination half-life, and prolonged day-time sedation.

Altered Drug Metabolism and Excretion

Renal Route

Renal function declines with age to a marked degree and drugs excreted via the kidney will show reduced clearance in the elderly. A normal serum urea or serum creatinine does not accurately reflect the function of the kidneys. That is because the source of creatinine is from muscles, and elderly patients tend not to be very muscular as part of the ageing process. A rough estimate of the renal function using serum creatinine corrected for age is (Cockrott and Gault 1978):

$$\text{for males} \quad \frac{(140 - \text{age in yrs}) \times \text{BW (in kg)}}{72 \times \text{Serum creatinine}}$$

and for females: the above value x 0.85.

The general principles of prescribing for elderly patients, all of whom can be assumed to have some decrease in renal function, are:

1. Select agents that have the broadest therapeutic margin.
2. Select agents that cause the least damage to the kidney.
3. Select agents that are best studied and easy for dose adjustment.
4. Avoid drugs with active metabolites, which accumulate in renal failure despite unchanged handling of the parent compound, like metabolites of chloramphenicol, ß-adrenoceptor antagonists and most of the sulphonylureas[10].

Hepatic Route

Hepatic metabolism shows more complex and fewer predictable changes. The pathway involved in oxidative metabolism may be impaired, while the pathway involved in conjugation is much less affected by advancing age.

In addition, hepatic blood flow and liver mass both decline with age, and the liver probably functions at half to one third the level compared to the young.

Altered Pharmacodynamics

The effects of drugs are influenced by changes in the sensitivity or density of drug receptors. In the elderly, the clinical effect of drugs (like ß-blockers) for a given concentration is less than would be expected.

Drugs with Increased Potency in Elderly:

Warfarin
Heparin

Benzodiazepines
Narcotic analgesics
Phenytoin
Theophylline

Drugs with Reduced Potency in Elderly
ß-Blockers

Altered Physiological State
Central Nervous System:
There is loss of neurons with age, the so-called neuronal dropout. There is also an accumulation of lipofuscin in the neurons, and a reduction in production of neurotransmitter from these neuronal cells. Therefore, structurally, there is cerebral atrophy. The reduction in production of the neurotransmitter dopamine in the substantia nigra will cause an increased susceptibility to extrapyramidal side effects of drugs, e.g. prochlorperazine, haloperidol and other antipsychotic medications.

Because of reduced function of the brain globally, any added stress can upset the fine balance in the cerebral cortex. For example, an infection at any site could present as an acute confusional state or as drowsiness in the older person.

Cardiovascular System:
There is a gradual rise of BP with age because the pressure regulation is set higher. Simultaneously, there is a loss of reflex tachycardia during postural changes, resulting in a tendency toward postural hypotension.

Gastrointestinal Tract (GIT):
Reduced motility is a major problem. Because of reduced motility, constipation is a special problem in the elderly. Atrophy of the lining epithelium increases the risk of developing ulcers from NSAIDs and the risk of bleeding from the GIT.

Absorption remains the same.

Renal Function:
The kidneys become smaller, with a 20% reduction of renal mass. Up to 12% of the glomeruli are sclerosed by 70 years age, and renal blood flow is reduced by 10% per decade of life. Tubules are less responsive to hormones, like ADH in particular, and thus salt and water handling is inefficient. Fluid and electrolyte balance is maintained in health, but under stress, there is exaggerated water loss and the patient becomes rapidly dehydrated.

There is increased susceptibility to nephrotoxins like gentamicin and NSAIDs.

Reduced renal function prolongs half life of drugs that are excreted or metabolized by the kidneys, including many hypoglycemic agents and insulin. Therefore, we need to avoid long-acting hypoglycemic agents like chlorpropamide and glibenclamide and use shorter-acting ones like tolbutamide. Insulin doses will need adjustment as well.

In male subjects, prostatomegaly usually occurs with age, and this could cause acute retention of urine when anticholinergics or diuretics are prescribed. In addition, such drugs may cause an overflow incontinence.

SNAPSHOTS OF COMMONLY PRESCRIBED DRUGS

CARDIOVASCULAR DRUGS:

Digoxin
This is commonly prescribed for atrial fibrillation and heart failure. Clinical conditions to be aware of (to prevent toxicity) are:

1. Renal failure or impairment.

2. Concomitant diuretic therapy — mainly because it may cause dehydration, pre-renal failure and hypokalemia (especially if serum potassium <3.0 mmol/L).

We should start with a low dose, like 0.0625 mg/day, and watch the pulse to monitor the clinical response. When digoxin is used to control supraventricular tachycardia, there is a clear guide (pulse and apex heart rates) to correct dosage. This is lacking in patients with sinus rhythm. It is only in the latter situation that it is necessary to resort to nomogram and equations to calculate the maintenance dose.

One such formula for calculating the maintenance dose is:

$$\text{Maintenance dose} = \text{loading dose} \times (\%\ \text{eliminated each day})$$

$$\text{where } \%\ \text{eliminated} = 14 + \frac{\text{creatinine clearance}}{5}$$

(Jelliffe, 1971)

Levels should be checked when toxicity is suspected. Symptoms of digitalis toxicity are non-specific and cardiac arrhythmia is frequently the first indication of toxicity. An acute confusional state or a gastrointestinal upset could be an early symptom in this age group.

Dall[11] found that up to 75% of patients on digoxin who had sinus rhythm could be taken off the drug without any effects. However, this is not so in patients with supraventricular tachycardia, although a reduction in dose is worthwhile once the situation is under control, especially if a precipitating cause such as thyrotoxicosis has been treated.

Nitroglycerin (GTN)
This gives headaches, and lowers blood pressure, and could even predispose to falls and syncope. Therefore to reduce the danger the patient should be instructed to take GTN sitting. GTN should be kept in a cool dark container, as sunlight will destroy the drug and render the drug ineffective.

Diuretics
There is always a danger of dehydration, hypokalemia and hyponatremia. When combined with a potassium agent or potassium sparing drug, there is a need to check serum electrolytes regularly to prevent imbalance. Diuretics could predispose to acute retention of urine, urinary incontinence and gout.

SEDATIVES / ANXIOLYTICS:
These drugs are given for sleep disorders. It is essential to be clear about the reasons for their prescription. They should not be given for psychotic behaviour, as they could cause confusion or worsening of the delirium state. Psychotic behaviour should be treated with anti-psychotics, like thioridazine (Melleril), trifluoperazine (Stelazine) and chlorpromazine (Largactil).

If necessary, short-acting sedatives or anxiolytics should be prescribed.

Short acting:
Chlormethiazole (Heminevrin) — half life of 4 hours, and has no active metabolites.
Zopiclone (Imovane) — half life of 3.5 to 6 hours.
Buspirone (Buspar) — half life of 2 to 11 hours.

Intermediate acting:
Lorazepam (Ativan) — half life of 8-20 hours, with no active metabolites.
Temazepam (Normison) — half life of 6-8 hours; metabolites have little activity.
Alprazolam (Xanax) — half life of 12-15 hours; has an added advantage of having antidepressant effects.

Long acting:
Diazepam (Valium) — half life of 20-90 hours, and its metabolites are active as well. The metabolites are:

1. DMDZ or Desmethyldiazepam (half life 29-223 hrs)
2. Temazepam (half life 8-38 hours)
3. Oxazepam (half life 6-25 hours).

The long half-life is the cause of day-time sedation. It has also been implicated as a cause of falls, forgetfulness, ataxia and confusion (especially at night) in the elderly. It causes agitation in certain patients.

Principles in Using Sedatives in Old People[12]:

1. ***Do not use*** till indications are clear.
2. ***Always exclude underlying mental and physical problems*** (depression and dementia are worsened by benzodiazepines).
3. ***Try alternative means*** to treat insomniacs:
   a. Reassure patient.
   b. Elderly patients often require less sleep than the young, so patient may not be suffering from insomnia.

c. Exclude secondary causes:
Bodily discomfort - pain, pruritus, constipation, etc.
Overstimulation from late coffee or tea.
Cat-nap during the day.
Chronic obstructive airway disease (COAD).
Affective disorders – anxiety or depression.
Acute confusion.
Dementia.

d. Encourage light exercises in the evening.

4. ***Prescribe only short courses*** of medicine each time. A trial of not more than two weeks would be appropriate.

5. ***Start with short acting drugs*** first.

6. ***Withdraw slowly*** if use is prolonged. Dependence has developed in patients on the drug for three to four weeks of medication even at normal dosage[13].

7. ***Lower the starting dose*** of drugs: Recommended levels are:
Alprazolam : 0.25 to 0.5 mg BD
Lorazepam : 0.5 OM or BD, with increments of 0.5 mg
Oxazepam : 15 to 30 mg BD, increments of 15 mg.
Temazepam : 15 mg / day
Triazolam : 0.125 mg/day.

Even in the sleep laboratory, chronic insomniacs sleep as poorly on drugs as when off drugs.

GI DRUGS:

Cimetidine
Cimetidine is cleared rapidly from the plasma in normals (half life is 2 hours), but less rapidly with renal failure or impaired liver function.

It causes confusion in susceptible old people. Symptoms include mental confusion, lethargy, restlessness, disorientation, agitation and hallucinations. Patients over 75 years should not receive more than 400 mg BD and should be reviewed at regular intervals.

MMT and Gaviscon®
These drugs have a high sodium content, and should be given with caution in patients with heart failure, hypertension or marked renal failure.

Maxolon
Causes extrapyramidal side effects.

Prochlorperazine (Stemetil)
This is a commonly prescribed drug to treat dizziness, nausea and vomiting. While it is probably appropriate to use it in the young (since the commonest cause of dizziness in the young is due to a vestibular cause), this is not so in the elderly because the commonest cause is vertebro-basilar insufficiency. Not only is it used inappropriately, it also has serious side-effects. The most noticeable would be sedation, extrapyramidal signs (Parkinsonism) and even an ataxic gait. Parkinsonism may come on during or even after taking off the medication, and may last for up to one year.

Laxatives
Chronic use of laxatives could lead to dependence. It may also damage nerve terminals of the myenteric plexus, and predisposes to megacolon or even a terminal reservoir syndrome.

Agarol, a popular laxative, has its problems: it contains 3 components:
Phenophthalein — which in chronic use would damage the innervation of the lower colon,
Agar — which provides bulk for the stools, and
Paraffin — this is the culprit that produces faecal incontinence.

Alternatives to laxatives[14] should be encouraged, namely:

1. Adequate fluids.

2. Exercise

3. Adequate fiber to form bulk and regulate the bowel movements

4. Re-establish bowel habits: to sit on toilet bowl after breakfast, as this is the usual time after food when the gastro-colic reflex is greatest.

5. Review drug list — constipating agents include calcium tablets, iron tablets, vitamin supplements, aluminium hydroxide, etc.

6. chronic constipaters should be reviewed and secondary causes excluded: hypothyroidism, carcinoma, depression and Parkinson's disease.

ANTIBIOTICS:

Antibiotics are some of the most extensively used drugs.
Penicillins have no nephrotoxic action and have a wide therapeutic index.

Cephalosporins are mostly eliminated in the urine. Dosage adjustment is necessary as accumulation increases the risk of nephrotoxicity, especially when used with aminoglycosides.

Erythromycin is also a safe drug to use, but may induce an upper GI upset. The introduction of EES 400 (Erythromycin ethylsuccinate) that can be given at doses of up to 800mg BD has reduced this GI side-effect.

Tetracyclines are avoided in the elderly because of their renal toxic effect, except for doxycycline.

Aminoglycosides are toxic not only to the kidneys, but also to the inner ears, and renal function needs to be checked every three days.

Co-trimoxazole is contraindicated in severe renal insufficiency due to the dangers of crystalluria.

Nitrofurantoin is predominantly excreted in the urine, and peripheral neuropathy is associated with impaired renal function and prolonged therapy.

ANALGESICS:

NSAIDs
All NSAIDs can induce:

1. GI problems - GI ulceration or bleeding, epigastric pain.

2. Renal deterioration - worsening renal function.

3. Cardiac problems - may be secondary to deteriorating renal function, or due to their fluid retention and sodium retention effects.

Patients at particularly risk:
- Concomitant corticosteroid treatment — GI problems,
- Concomitant use of diuretics — renal deterioration,
- Patients with long standing hypertension — assumed renal vascular disease,
- Patients in heart failure, and
- Patients with established renal failure.

Certain NSAIDs have been found particularly unsuited for elderly patients:

Piroxicam (Feldene) was found the most ulcerogenic in elderly women in particular, more so than indomethacin and naproxen.

Dextropropoxyphene (Paradex) and ***Pentazocine*** (Talwin) are not recommended for the elderly. Dextropropoxyphene has not been shown to be more effective in pain relief than other mild analgesics, but dependency and withdrawal symptoms can occur. Furthermore, the drug is dangerous in overdose causing convulsions, pulmonary oedema and depression of respiration and blood pressure. Pentazocine produces a high incidence of gastrointestinal side effects, dizziness and hallucinations, without relieving pain any better than other analgesics.

Phenylbutazone should be avoided as the prevalence of fatal blood dyscrasia is about five times more common in those over 65 years than in younger age groups[10].

To avoid these problems, it has been recommended that NSAIDs be started only when there are definite indications for their use. Just using them for analgesia would be tapping only half their potential, as they are also antiinflammatory agents as well.

Other considerations[15] include:
1. Think of **alternative** means first — like intra-articular steroid injection for joints with osteoarthritis.

2. Emphasize on **local treatment** — physiotherapy to strengthen muscles supporting the joint to improve stability of the joint, local heat therapy, short wave treatment, etc.

3. Use **low doses**.

4. Prescribe with **antacids, H2 antagonists** — efficacy not well established, when compared with **Misoprostol** (Cytotec). This is a prostaglandin analogue, and therefore could protect the mucosa against ulceration.

5. Monitor **side effects** — when first used, check Hb and renal function monthly, and after three months, check them 3-monthly. Carry out endoscopy if new anaemia is found, or when symptoms persist (for four weeks) despite treatment.

CONCLUSION

Both the physician and the patient must play a part in preventing the occurrence of adverse drug reactions. **The physician** should:

1. *Strive for a precise diagnosis.* Prescribe only on positive indication and avoid giving a drug for each symptom.
   Faulty diagnosis naturally causes faulty treatment.

2. *Avoid complex drug regimes.* Aim for two or three different drugs per day and use only once- or twice- daily dosage when possible. It has been found that once-daily dosing of NSAIDs has a compliance rate of 65%, compared to only 37% for QDS-dosing.

   The 'Rule of Fives' should be a good guideline toward prescribing i.e. no more than five drugs should be prescribed any time. This is aimed to improve compliance to treatment, and to reduce risk of ADRs[6].

3. *Know a few drugs well.* Be skeptical of extravagant claims for new drugs.

4. *Prescribe the same brand* consistently as elderly people may be confused by the color, shape and size of the tablets or capsule given to them.

5. *Ensure that elderly have access to the drugs prescribed.* 30% of the elderly could not open child-proof container designs.

6. *Review* the need for chronic therapy.

7. *Explain reasons* why each drug is given and emphasize on the need for long-term therapy e.g. thyroxine.

8. *Check compliance* of patient to treatment before making major alterations to the regime while assuming that the regime has failed.

9. *Be careful when withdrawing a drug* from the usual list. Certain antihypertensives can cause a rapid rise in blood pressure within 24 to 48 hours of abrupt withdrawal. Rapid with drawal of ß-blockers, calcium antagonists and nitrates could result in increased attacks of angina, decreased exercise tolerance, and ST changes on ECG. Similarly, rapid withdrawal of anti-Parkinsonic therapy could induce on akinetic crisis, of corticosteroids an Addisonian crisis, of anticonvulsants status epilepticus, and of benzodiazepines confusion, insomnia, psychosis and convulsions.

Patients should be educated:

a. to see only one doctor to prevent too many medications and complicated and confusing regimes of treatment being prescribed.

b. to know that drug treatment takes time to work, and that they should not rush to see another doctor or opt for another type of drug when they do not see results within a day or two.

Symptom control, enhanced quality of life and increased longevity are some benefits that the elderly of today enjoy, owing in large part to the introduction of modern effective therapies. However, many a therapy is also a double-edged sword that can wreck vengeance if misused.

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SLEEP DISORDERS IN THE ELDERLY

E H Kua, MBBS, MRCPsych, FAMS

INTRODUCTION

Changes in sleep pattern are not uncommon in old age. The disturbance in sleep may be due to physiological change of normal ageing or secondary to sleep disorders.

The circadian sleep-wake rhythm disturbance in normal ageing can lead to increased night time wakefulness and daytime fatigue or napping. Elderly people are more easily aroused from sleep by environmental stimuli.

Sleep disorders in the elderly are usually caused by

a) pain, e.g. arthritis, angina,
b) breathing discomfort, e.g. asthma, sleep apnoea, heart failure,
c) psychiatric illness e.g. depression, anxiety, dementia, or
d) drugs e.g. caffeine, alcohol, hypnotics.

ASSESSMENT OF SLEEP HABITS

1. Sleep-wake cycle:
   - sleep latency:
     difficulty falling asleep suggests tension and worry, e.g. anxiety disorder
   - frequent night-time awakening:
     associated with anxiety and sleep apnoea
   - early morning awakening may indicate depression
   - daytime naps.

Associate Professor
Department of Psychological Medicine
National University Hospital
Singapore

2. Environmental factors:
   - noise, light and temperature
   - bed and bedroom.

3. Diet and activities:
   - stimulants, e.g. coffee, tea, tobacco
   - alcohol
   - exercise.

4. Any illness:
   - physical
   - psychiatric.

MANAGEMENT: DRUG TREATMENT

In selecting a hypnotic it is important to remember:

1. the danger of dependence with withdrawal symptoms of anxiety and insomnia. Therefore use low doses and give a short course of less than two weeks.

2. 'rebound insomnia' can occur with all benzodiazepines, especially the short acting ones like triazolam and midazolam.

3. the nature of the sleep disturbance, i.e. is there difficulty in initiating sleep, frequent awakening or early morning awakening?

4. whether the person's work or domestic situation requires alertness early in the morning.

5. prolonged administration may lead to memory impairment.

6. the sedative effect is increased by combination with alcohol, antihistamines, antidepressants, antipsychotics, anti-anxiety drugs and narcotic analgesics.

7. benzodiazepines should be avoided in pregnancy. Hazards to the foetus are greatest in the first trimester but, in the last trimester, they may cause hypotonia, poor suckling and hypothermia in the neonate. The drugs can cross the placenta and also enter breast milk.

The following benzodiazepines are commonly prescribed in Singapore (see Table 1):

Table 1: Benzodiazepine pharmcaology

Drug	Half life (hours)	Time to reach effective level	Dosage (elderly-adult)
Diazepam	20 - 100	15 mins	2 - 5 mg
Flurazepam	50 - 200	30 mins	15 - 30 mg
Temazepam	8 - 10	90 mins	10 - 20 mg
Triazolam	2 - 3	30 mins	0.25 - 0.5 mg

Diazepam (Valium)
Because of its long duration of action, diazepam is useful for patients whose insomnia is associated with daytime anxiety. The slow elimination and accumulation of its metabolites are responsible for the prolonged action of more than 12 hours. Dosage: 2-5 mg.

Flurazepam (Dalmadorm)
This is particularly useful for depressed patients with early morning waking, but may impair daytime alertness. Dosage: 15-30 mg. It is quickly absorbed and slowly eliminated with a sedative effect of 12 hours.

Nitrazepam (Mogadon)
It is of value in patients with early morning waking but does cause some drowsiness in the daytime. Usual dose is 5-10 mg, and 2.5 mg for an elderly patients. It is slowly eliminated and the sedative effect lasts for about 8-12 hours.

Temazepam (Normison)
It has a shorter half-life than diazepam and an extremely slow rate of absorption. Peak concentration is not reached until 2-3 hours after administration. It is useful for those who have frequent awakening and produces minimal morning drowsiness. Duration of sedation effect is 6-8 hours. Dosage: 10-20 mg.

Triazolam (Somese)
This hypnotic has a very short half-life of about 3 hours and is without long-acting metabolites. The duration of sedative effect is about 3-4 hours. It is recommended for transient insomnia and especially insomnia associated with difficulty in falling asleep. Memory impairment and hallucination have been reported with triazolam. Dosage: 0.25-0.5 mg.

Midazolam (Dormicum)
This is a short-acting hypnotic with a rapid onset of action. The interval between taking the tablet and falling asleep is less than 30 minutes. It is useful for those who have problems in falling asleep. Dosage: 15-30 mg.

HEALTH CARE FOR THE ELDERLY

L H Lim, MBBS (S'pore), FCFP (S'pore)

AGEING

Ageing should be seen as a natural phase of human development. It is a multidimensional health process comprising:

(a) physical ageing,
(b) social ageing, and
(c) psychological, intellectual or mental ageing.

Physical ageing, however, is a biological process that cannot be stopped. Of importance is that ageing causes profound impairment in the functioning of the body, mind, and emotional make-up of a person.

Factors affecting actual life span and quality of life are:

1. Genetic make-up
2. Environment
3. Healthy lifestyle with mental and physical activities (exercise and social involvement avoiding tobacco and alcohol abuse)
4. Sound nutrition
5. Trauma and accidents
6. Disease and illness.

It is now well established that the adoption of a healthy lifestyle — exercise, social involvement and sound nutrition — will ensure higher levels of fitness, vigour and independence. In addition, many of the major disabling diseases of modern life may be prevented or postponed by avoiding tobacco or alcohol abuse and a sedentary life.

Preparation for a successful and happy old age is indeed a life-long requirement, and individuals should appreciate that the way they behave in youth and middle age significantly affects the quality of their later lives.

THE AGED POPULATION IN SINGAPORE

Singapore is undergoing a rapid transition into an ageing society, and demographic studies show that by the year 2030, 26% of Singapore's population would be above 60 years of age.

Contributing factors are:

1. Dramatic fall in birth rate
2. Fall in infant and early childhood mortality rate
3. Improvement in life expentancy from modern medicine, better standards of living, and political and economic stability.

CLASSIFICATION OF THE AGED

The WHO has produced a useful classification of older people, dividing them by chronological age into three stages:

1. Middle age persons (45 to 59),
2. The elderly (60 to 74), and
3. The aged (75 and over).

The elderly are usually ambulatory and can perform activities of daily living, and should be regarded as a resource and use found for their skills, knowledge and experience.

Adjunct Senior Lecturer
Department of Community
Occupational & Family Medicine
National University Hospital
Singapore

Family Physician
#04-06/08 International Building
360 Orchard Road
Singapore 0922

The aged may still be ambulatory, some may require a principal carer giving assistance of various kinds and support services as well.

THE PATHS TO PRODUCTIVE AGEING

There are practical hints on adopting the paths to productive aging, e.g. participation of the elderly.

The challenge posed by ageing today is not just one of providing protection and care, but of the involvement and participation of the elderly and the ageing. The transition to a positive, active and developmentally oriented view of ageing may well result from action through the sheer force of their growing numbers and influence, i.e. their actual involvement in problem solving, decision-making and evaluation at the level of the family community, locality and nation. This participation can be self generated, but it also needs the support and encouragement of community and government.

HEALTH CARE FOR THE ELDERLY

In general, for the elderly, health care is made up of the following components:

1. An understanding of the influence of the social environment within which the elderly have to function, and its effects on their health.

2. Knowledge of programmes aimed at the promotion and maintenance of health and early detection of its impending breakdown.

3. Organisation and provision of services for health care.

4. Informal carers include the elderly themselves, family members, friends, volunteers and neighbours. Although labelled as informal carers, they need to be selected, organised, educated, supported and supervised. Certain attitudes are essential, including a love of old people, an unselfish personality, patience and a readiness to listen. Skills and practical information are also necessary including nursing skills, knowledge of psychosomatic ageing process, information on the help and socio-economic services available and the local key person to contact for help.

Promotion of health care is concerned with:

I. Maintenance of Health

For the elderly, maintenance of good health is important and should focus on

(a) Health education of the elderly:

The elderly and their carers need to be educated and informed that ageing is not a disease, that disability in old age is often due to disease and that early treatment may prevent disability. Also positive attitudes towards ageing should be actively promoted, e.g. health education on healthy lifestyles, pre-retirement seminars and courses on financial planning, health maintenance, recreation and time management towards a successful retirement.

(b) Disease prevention is important, and it is a life-long process requiring health promotion, proper instructions and a healthy lifestyle. Prevention strategies cover three levels:

(i) Primary prevention against onset of disease, e.g. screening for precursors or risk factors of disease, and immunisation against specified infectious disease especially against influenza

(ii) Secondary prevention for earlier detection of disease resulting in better chance of curing

(iii) Tertiary prevention in the detection of established disease and disability in patients who are not receiving appropriate treatment and support.

(c) Continuing supervision of those found to be at risk.

II. Illness in Old People

Illness in old people demands immediate assessment of:

(a) The total condition of the patient in regard to physical, mental and social health.

The physical diagnosis arising out of history taking and physical examination.

Mental health assessment involves measurement of both cognitive and affective function.

Impairment of intellectual function and depressive states are common and important conditions in the elderly.

(b) A knowledge of:
(i) home conditions

(ii) presence or absence of caring relatives

(iii) the possibility of keeping the elderly patient in that particular environment or return to it following admission and discharge from hospital.

All these could be taken care of by the family/primary care physician or a member of the health care team.

(c) Functional assessment:

This is the assessment of the patient's pre-morbid dependence level and the functional ability as a result of illness and disability. Assessment should include:

(i) assessment of morbidity,

(ii) activities of daily living, and

(iii) independent living activity.

To help improve and maintain functional ability, the combined effort of a multidisciplinary team comprising health professionals (doctors, nurses, physiotherapists, occupational therapists, speech therapists, social workers) and care-givers (family members, friends, neighbours, etc.) is required.

When disability steps in, then rehabilitation to the highest level of independence should be made possible.

GUIDING PRINCIPLES IN CARING FOR THE SICK ELDERLY

In caring for the sick elderly, there are guiding principles to follow:

1. Older people are happier and healthier in their own homes if they are fit enough to be there and so desire.

2. The elderly are ill not because of advancing age but due to illness.

3. The old have an altered physiology which may render their presentation of diseases atypical. This altered physiology results in impairment of hearing, diminished pain sensation, defective postural control, deterioration of autoimmune nervous system and lessened perception of ambient temperatures.

4. The pathology of their illness is commonly multiple.

5. Older people have an immense potential for recovery.

PROBLEMS ENCOUNTERED IN THE SICK ELDERLY

1. Atypical Presentation of Disease

To start with, old people are poor historians. Secondly, diseases present in altered fashions due to the altered physiology in the elderly, e.g.

- acute myocardial infarction without chest pain
- painless perforation of duodenal ulcer
- absence of fever in infections
- cardiac failure may present with tiredness, insomnia or mental confusion

2. Multiple Pathology

The simultaneous presentation of many illnesses is common in the elderly. Searching for a single pathology to account for all the

symptoms and signs is seldom applicable to the elderly.

3. Physical and Mental Disease

The frequent co-incidence and inter-dependence of physical and mental illness in the elderly must be appreciated. Mental confusion (acute brain failure) onset is more likely when there is physical disease.

Affective illness is also common and depression is frequently found in association with physical disease, e.g. following a stroke. Also depression in older patients presents with atypical symptoms.

4. Medication (prescribing) Problems

The elderly patient presenting with multiple pathology is usually associated with multiple drug taking, and therefore subjected to a high risk of adverse drug reactions. Also, physiological changes have important bearing on drug usage.

Family physicians must have adequate knowledge and understand the special pharmacokinetic and pharmaco-dynamic characteristics of the elderly, especially the very old.

Drugs must be prescribed in correct dosages and every effort made to secure accurate compliance. Every effort must be taken to avoid interactions and unnecessary polypharmacy.

DISEASE PATTERNS IN THE ELDERLY

Disease presentation in the elderly is often a combination of new disease with a background of pre-existing diseases and disability with a background of gradual decline.

Characteristics of disease in the elderly:

1. Multiple disease — majority of elderly patients suffer from multiple disorders.
2. Altered incidence of specific diseases.

   Certain diseases occur more frequently in the elderly, e.g. malignancy, stroke, Parkinson's disease, hypertension, dementia, depression and fracture of femoral neck. Certain other diseases like viral infections occur less frequently.

3. Altered response to illness, e.g.

   - infections occurring without fever
   - there is often less pain than expected in illness like silent myocardial infarcts, silent perforated peptic ulcers.

4. Unreported illness

   In the elderly, there is a higher incidence of diseases which are not mentioned by the patient to the doctor.

5. Falls in the elderly

   Falls are common occurrences in the elderly. There is an age-related increase in incidence more marked amongst females.

   Incidence studies show:

   Women - 30% in those aged 60-65 years
   50% in those over 80 years

   Men - 13% in those aged 60-65 years
   30% in those over 80 years

   Falls may result in:

   (a) serious physical trauma
   (b) serious psychological trauma
   (c) loss of confidence following repeated falls
   (d) increasing immobility leading to increasing muscle weakness
   (e) premature institutionalisation.

   Causes of falls in the elderly:

   (a) Poor vision
   (b) Malfuncitoning of balance organs

(c) Orthostatic hypotension
(d) Slow and delayed transmission of body position
(e) Affected posture and immobility of joints.

THE ROLE OF THE DOCTOR IN THE COMMUNITY HEALTH CARE TEAM

The Community Health Care Team plays an important role in helping the elderly maintain an independent life in the community for as long as possible by:

1. emphasing preventive medicine for the elderly
2. provision of supportive and care services
3. ensuring emotional and physical support for carers.

Members of the Community Health Care Team:

- The general practitioner or primary care physician
- The district nurse
- The community occupational therapist
- The speech therapist
- The social worker
- The health visitor
- The home helper
- The volunteer worker
- The chiropodist.

The doctor must accept key leadership role in the team.

His role is essential to the making of a proper medical diagnosis and to the prescription of appropriate medical treatment. He needs help from his team in many of his decisions.

The doctor as leader accepts the final burden of responsibility.

To be an effective leader, the doctor must:

1. have basic knowledge of some of the important age-related anatomical and functional changes,

2. be aware of the resources and services available for the elderly in his community, and

3. play an important role in promoting preventive medicine for the elderly by active case finding and health education.

The Doctor's Role

Identify and treat remediable problems by:

(a) clinical assessment (includes mental status)
(b) functional assessment
(c) assessment of the environment
(d) prioritizing patient's needs and solutions
(e) aggressive treatment to prevent complications from setting in, e.g. the case of antibiotics for mild chest infection
(f) regular monitoring and follow up.

Facilitate family and community support for care of the elderly:

(a) co-ordination of care social services
(c) co-ordination of rehabilitation.

Facilitate changes in the environment to maximise functioning the face of longstanding problems:

(a) prevention and control of disease
(b) promotion of good health / modification of lifestyle.

Authorisation:

For example, doctors may need to certify that a patient is sick, disabled or demented in order to qualify for residential care facilities.

Provide personal care and support through:

(a) listening
(b) reassurance

The doctor's role is directed at solving problems which may arise with elderly patients, co-ordinating their care, rehabilitation and providing medical authorisation when necessary. This will enhance the patient's ability to cope with his / her environment satisfactorily.

HEALTH CARE SERVICES FOR THE ELDERLY IN SINGAPORE

Poor and affluent, as well as rural and urban, elderly should have equitable access to community care.

1. Residential care services

   E.g. Homes for the Aged and Aged Sick are run by government, voluntary organisations, religious bodies as well as private individuals or groups.

2. Day care services

   - are provided mainly by voluntary organisations. Most centres offer a combination of physical care, rehabilitation in the form of appropriate exercise, socialisation and simple nursing care.

3. Home Nursing Foundation (HNF)

   In Singapore, organised community based health care for the elderly is provided for mainly by the HNF which:

   (a) provides home nursing services for the non-ambulant sick in their own homes with special attention to the elderly sick,

   (b) promotes community interest and participation in the total health care of the elderly, and

   (c) operates Senior Citizens' Health Care Centres (SCHCC) in the community which provide rehabilitation, day care and comprehensive health programmes for the elderly.

4. Singapore Trained Nursed Association provides day care centres, home visits, etc.

5. Rehabilitation services for the elderly in Singapore, e.g. Department of Rehabilitation Medicine at Tan Tock Seng Hospital, Singapore General Hospital, National University Hospital and private hospitals.

6. Occupational Therapy Services in various government hospitals, private hospitals, day care centres and SCHCC.

7. Ministry of Health Social Work Services

8. Financial assistance for the needy elderly is provided by government and various voluntary charitable organisations.

9. Social and Recreational Centres

   e.g. Singapore Action Group of Elders (SAGE), Senior Citizen Clubs.

10. Befriending services run by Ministry of Community Development

Community-based health care is under the purview of the Department of Health Services for the Elderly (HSE). Finally, to oversee the health of the elderly in Singapore, there is a Department of Continuing Care, Ministry of Health.

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ORIGINAL ARTICLE

ABRUPT DISCONTINUATION OF MIDAZOLAM: A REPORT OF THREE CASES WITH WITHDRAWAL SYNDROMES

R Mahendran, MBBS, DPM, MMed (Psychiatry), FAMS

SUMMARY

Three cases with a broad spectrum of symptoms of withdrawal from a short-acting benzodiazepine, Midazolam are reported. Although the presence of a Withdrawal Syndrome from benzodiazepines is known, the severity of presentation in these cases is anecdotal. This report serves as a reminder of the abuse potential of benzodiazepines and the problems associated with long-term benzodiazepine use, and emphasises necessity for patient education and advice.

Keywords:
Midazolam, Benzodiazepines, Withdrawal Symptoms

Benzodiazepines have a high risk of abuse and development of behavioural tolerance. Significant adverse side-effects such as residual daytime effects (daytime sedation, poor concentration and performance decrements), anterograde amnesia and withdrawal syndromes can occur[1].

Withdrawal from benzodiazepines may present as rebound insomnia following abrupt withdrawal and early morning insomnia which may even be seen during drug administration with short-acting benzodiazepines[2]. Pharmacodynamic activity of benzodiazepines is determined by drug action at the GABA receptor complex. Studies have shown that their side-effects may be dependent on dose, concentration and half-life of the benzodiazepines, although the relationship may not be linear[3,4]. Frequency and severity of side-effects vary among the benzodiazepines.

Midazolam (Trade name Dormicum) is an ultra short-acting benzodiazepine with a half-life of one to four hours. It is used as a short term anaesthetic and as a hypnotic agent. It has a rapid rate of onset with peak plasma concentration being achieved within 20 to 60 minutes and is metabolised in the liver by oxidation. Midazolam has a short elimination half-life of about 2 hours.

Midazolam is widely used as premedication by intramuscular injection (midazolam hydrochloride) and for induction, by slow intravenous injection[5]. The tablet form (midazolam maleate) is used as a hypnotic. But availability in tablet form is limited to Switzerland and countries of the Asia Pacific region. Each midazolam tablet is 15 mg and blue coloured.

Literature on the drug is mainly on pharmacokinetic studies. The three cases reported here reflect the variety and severity of symptoms that can be associated with abrupt withdrawal from midazolam after long-term use.

Case Report 1

K M, 63 years old and retired, was prescribed 15 mg midazolam every night for insomnia by his general practitioner. He developed tolerance to

Consultant Psychiatrist
Woodbridge Hospital and
Institute of Mental Health
Singapore

the dose and increased sleep latency and after a year, he was taking two tablets a night. He noted he was becoming more forgetful, misplacing things and forgetting appointments. This worried him and as he has been warned about side-effects with benzodiazepines he became determined to stop taking hypnotics. When seen at the Psychiatric Outpatient Clinic, the mental state examination did not reveal any psychiatric disorder. Despite advice he abruptly stopped his medication and developed withdrawal symptoms that very night.

K M was unable to sleep and felt anxious and miserable. He experienced thoughts and vivid mental images of various incidents from his past which kept flashing through his mind. Only at times was he able to voluntarily stop them. He also experienced other perceptual disturbances — noises and lights were perceived as more intense than usual. He was tired and anxious the next day but felt restless and had only short naps. The same symptoms recurred that night and continued for four days with decreasing intensity. By the fifth night he was able to sleep for short periods interspersed with periods of lying awake[6].

Case Report 2

T K H, a 30 year old man, was remanded and referred by the Court for psychiatric assessment. He was charged with a series of armed robberies and was awaiting trial. History revealed he had been abusing midazolam for one and a half years and had experienced perceptual disturbances and withdrawal phenomena. His minimum daily dose was ten tablets of Midazolam and he had taken up to a maximum of thirty tablets a day in divided doses. He had a seizure about a year ago. He had also experienced auditory hallucinations in the last six months. These had become progressively frequent, initially calling his name and now commanding him to do things like wash his hands. They occurred in clear consciousness usually in the evening and nights.

During the day if he missed taking the tablets, he would feel uncomfortable and fearful. He would experience headaches, poor appetite, sweating off and on and he could not sleep. These symptoms would be relieved by taking the midazolam tablets.

On the day of his arrest he suffered severe withdrawal effects. He could not sleep for a few nights, experienced sweating, giddiness, nausea and poor appetite. He also experienced hot flushes and his teeth and jaws were painful. These symptoms lasted two weeks. From the third week, the hours of sleep slowly increased and the other symptoms disappeared.

Case Report 3

L C K, a forty-two year old unemployed man, had a past history of alcohol abuse. This was replaced two years ago by benzodiazepine dependence when he stopped alcohol intake because of liver complications. He initially tried a variety of hypnotics such as midazolam, triazolam and nimetazepam as he was warned tolerance would develop with excessive midazolam use. Over the last one year he had stopped all other tablets and had gradually increased the number of midazolam tablets, up to ten per day.

About four to six hours after each dose, he would feel restless and uneasy. He would experience headache and giddiness, his body felt cold and his jaw ached. He also complained of a lot of intrusive and ruminative thoughts. He would not be able to sleep, and off and on his mood would be low. These symptoms were much more severe if he did not take the tablets the whole day. This caused him to take the tablets regularly to offset the effects of withdrawal.

L C K also had a history of gambling, heavy smoking and a forensic record. He was supported by his wife and family members. He attended the Insomnia Clinic once and claimed he wanted to give up his dependency but defaulted follow-up and did not respond to contact.

DISCUSSION

Symptoms of benzodiazepine withdrawal have been studied in controlled clinical trials and there are also anecdotal reports. Many of the frequently occurring symptoms often mimic those symptoms for which benzodiazepines were prescribed in the first place. These include: dysphoria, anxiety, insomnia, restlessness, headaches, blurred vision,

sweating, muscle pain and twitches, all of which have been observed with stimulation of central adrenergic function[7].

However those who have been on high doses as was seen in Case Reports 2 and 3, are more likely to experience severe symptoms such as disturbances of perception and sense of reality. The perceptive disorders that have been described include hypersensitivity to noise, light and other sensory stimuli as well as distorted perception in the visual, kinaesthetic and acoustic spheres. Transient depersonalization and derealization have also been reported[8].

Withdrawal symptoms can occur with both long- and short-acting benzodiazepines. The half-life determines the rapidity of onset of withdrawal symptoms. With short-acting benzodiazepines like midazolam, oxazepam or triazolam the symptoms arise on the very first day of withdrawal. In cases 2 and 3, it is likely that the withdrawal phenomena and possibly daytime anxiety together reinforced drug-taking behaviour and led to dependence. Rickels et al in comparing the effect of abrupt discontinuation of therapeutic doses of different half-life benzodiazepines found that, depending on the outcome criteria used, 58% to 100% of patients could be judged to have experienced a withdrawal reaction. Peak severity in their cases was at two days for short half-life and four to seven days for long half-life benzodiazepines[7,9].

Various factors contribute to the development of and determine the severity of withdrawal syndromes. To reiterate, these include the dose of benzodiazepine, its potency and the rate of withdrawal, whether gradual or abrupt. Patient factors are also important; premorbid personality features such as passive-dependent traits and higher Eysenck neuroticism scores are predisposing factors like underlying psychiatric problems. Marks has indicated a "crutch" phenomenon which could increase dependence potential with some drugs. Also, expectancy effects might worsen perceived withdrawal or even result in pseudowithdrawal. Tyrer has described withdrawal reactions in long-term benzodiazepine users who mistakenly believed active drug was being replaced with placebo, when in reality it was not[10].

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SKIN PROBLEMS IN THE ELDERLY

S T Wong, MBBS MRCP (UK)
H L Chan, MBBS FRCP FACP FRACP FRCP (Ed) FAMS

INTRODUCTION

With the growing proportion of the aged in the Singapore population, it has become increasingly important to understand the skin problems in the elderly. In Singapore, the impact will be fully felt when the proportion of those above 60 years in the population increases to a projected one in four in the year 2030. A United States Public Health survey has shown a steady increase in the prevalence of skin diseases throughout life, reaching 65 per 100 above the age of 65 years.

The most obvious outward signs of "growing old" are on the skin. Wrinkled and sagging skin are among the hallmarks of ageing. Other cutaneous changes denoting senescence e.g. grey hair, lentigines and cherry angiomas are also well-known[1].

What are the underlying morphologic and functional changes in the skin associated with ageing? The most consistent change is flattening of the epidermal-dermal junction. The epidermis becomes thinner and loses its undulating rete pattern with increasing age. The barrier function of stratum corneum is progressively diminished and there is a age-related decrease in epidermal proliferation. There is a reduction in the density of active melanocytes, and a loss of Langerhan cells[2,3]. The dermis becomes thinner and less dense.

Division of Dermatology
Department of Medicine
National University Hospital
Singapore 0511

Alterations in the organisation of dermal collagen and elastic tissue fibres make the skin less resilient. There is impairment of excision repair of UV-mediated DNA damage. Sebaceous gland function decreases. Eccrine sweat glands become atrophic and the amount and rate of sweating are substantially reduced. The capillary loops and deep dermal vessels diminish in number, with a corresponding decrease in vascular responsiveness. Age-associated immunologic changes have implications for the skin[4]. With ageing, the thymus involutes. There is a rise in the prevalence of autoantibodies. Interferon production is reduced. There is a decrease in T-cell numbers and function. All or some of these alterations may be relevant in response to or for defence against infections, autoimmune diseases and cancers.

What about the skin problems affecting the elderly? Some of these diseases are more prevalent than in the young, while others run a more protracted course. Certain common cutaneous symptoms are a major source of chronic discomfort for the elderly.

PRURITUS

Persistent itchness of the skin in the elderly is usually accompanied by apparent dryness of the skin (xerosis) but without other obvious cause. It is probably the most common disorder in the elderly skin. It begins with xerosis, frequently aggravated by frequent bathing and the use of harsh soaps. At the moment there is no rational explanation for this unpleasant and often disabling symptom. The sensation of itch can be intense and excoriations can lead to eczematous changes and eventually to infection. Other dermatological and

systemic causes of pruritus e.g. scabies, lichen planus, chronic renal failure, hyperthyroidism and reticuloses should be excluded first before entertaining this diagnosis.

DISORDER OF ALTERED EPIDERMAL KINETICS

Rough, dry, scaling skin affects at least 75% of persons over the age of 64 in the West[5]. The frequent occurence of xerosis was borne out by a study conducted among the elderly at the National Skin Centre in Singapore[6]. The dryness has not been explained satisfactorily on a biochemical basis. Although elderly persons appear to sweat less, this is probably of little consequence in regard to dry skin. Water is not an effective therapy for xerosis and prolonged bathing may worsen it.

VESICULOBULLOUS DISORDERS

Bullous pemphigoid, a chronic blistering disease occuring mainly in the elderly, is characterised by subepidermal bullae on the skin. Over 60 percent of patients are older than 60 years at the onset and most cases occur in the seventh and eighth decades. This disease is autoantibody-mediated with immune complexes, complement, and eosinophils activated at the basement membrane zone leading to cleft formation and bullae at the dermal-epidermal junction. The age-related changes probably involve both the skin and the immune system. There may be altered self-antigens or a loss of tolerance, and a loss of B-cell regulation due to age-related decline in T-cell function.

ADVERSE CUTANEOUS DRUG REACTIONS

Increased intolerance to drugs administered systemically is well documented in the elderly patients[7]. This may be due to a reduced body mass and renal excretion and to altered metabolism of drugs. Elderly patients also are more likely to be receiving multiple drugs, often three to five different agents, therefore increasing the chances of drug to drug interaction. Drug reactions in the elderly may be more serious than in the young and resolution of the eruptions upon withdrawal of the drugs is often prolonged. Elderly patients often make errors in the use of their medications and they must always be closely questioned regarding drug intake, in view of age-related forgetfulness.

ECZEMA / DERMATITIS

Eczema, including endogenous eczema, contact dermatitis and not-otherwise-specified dermatitis, represents about a third of skin disorders seen among the elderly.

Asteatotic Eczema

Asteatotic eczema, one of the most common forms of endogenous eczema in the elderly, is essentially a complication of xerosis, which always precedes this type of eczema. Xerosis is often made worse by frequent washing and the use of harsh soaps. This dermatitis consistently appears over the lateral aspects and shins of the lower legs. There is a characteristic appearance of a cracked river bed with poorly defined borders. Pruritic and frequently tender, this dermatitis usually responds to emollient therapy.

Seborrhoeic Dermatitis

Seborrhoeic dermatitis is easily recognised by its characteristic clinical pattern of erythema and scaling in areas with abundant sebaceous glands. Although it can affect all ages, it becomes much more common with increasing age. It usually starts in the scalp and may be mistaken for dandruff. Later the rash progressively involves the frontal scalp margin, the eyebrows, the eyelids, the paranasal areas, the external ears, the retroauricular regions, the front of the chest, and the major body flexures. The pubis, gluteal clefts, and the penis (seborrhoeic balanitis) may be involved. The cause is not clear, but aetiologic roles for sebum (production paradoxically decreased), yeast (Pityrosporum ovale) and poor skin care have been proposed. A neurophysiologic role is suggested by the association of seborrhoeic dermatitis with Parkinson's disease. Seborrhoeic dermatitis may appear abruptly in the elderly, heralding the onset of Parkinson's disease.

Stasis Dermatitis

Stasis dermatitis is a form of dermatitis occuring as part of the gravitational syndrome on the lower legs of individuals suffering from venous hypertension. The disorder is rarely seen prior to middle age. There is scaling, erythema,

pigmentation, and fibrosis often associated with pruritus. The ultimate cause of this dermatitis is venous hypertension of the lower limbs. The venous hypertension is the result of venous valvular incompetence and an ineffective calf muscle pump. Other factors include obesity, trauma, venous thrombosis, or multiple pregnancies. For reasons that are as yet unclear, the eczematous process disseminates in a small proportion of affected patients to involve the thighs, the arms and the trunks, resulting in secondary generalization. Long-standing disease predisposes to ulceration with a predilection for the medial malleolus.

INFECTIONS

Grouped together as a whole, skin infections including tinea pedis, candidiasis, herpes zoster, scabies and viral warts form a large group of skin disorders seen in the elderly. Although the aged are able to respond with an immune response to an infection, the immune defence is slightly less speedy and efficient than in younger individuals and their ability to develop protective skin inflammation is diminished.

Dermatophyte Infections

Tinea pedis, often accompanied by onychomycosis, is common in the elderly. The affected areas are usually only mildly pink but have characteristic dry, silvery scales. It usually continues for many years with few symptoms and often worsens with age. The condition is often misdiagnosed as dry skin or eczema. It has been suggested that the non-inflammatory nature and the persistence of these infections in elderly patients is due to a specific anergy to the infecting micro-organism.

Cendidiasis

Intertriginous zones are more common beneath the flabby, redundant skin folds of elderly persons, and poor hygiene and moisture-trapping promotes microbial growth. Candida albicans can flourish in these regions, giving rise to minor soreness and irritation initially before exploding into intertriginous dermatitis.

Cellulitis / Pyodermas

Bacterial infections of the skin in the elderly may lack the classic signs and their presentation may be subtle and disguised. There may be only slight redness, tenderness and warmth, with no febrile response. Predisposing factors include chronic oedema, poor arterial and venous circulation, diabetes mellitus, unrecognised trauma, and portals of entry created by tinea pedis or asteatotic eczema.

Herpes Zoster

There is an increased incidence of herpes zoster in the elderly. Two-thirds of patients seen with zoster are over the age of 50 years. The age-adjusted annual rate is 0.25% for people aged 20-50 years, compared with 1.0% for those aged 80 years and over. It is known that post-herpetic neuralgia occurs more commonly in older patients. The risk of post-herpetic neuralgia is as high as 20 percent in patients over 60 years of age. The reasons for the persistence of the symptoms is not entirely understood but it has been suggested that fibrotic changes occur in the nerve terminals.

Scabies

Diagnosis of scabies in the elderly can be difficult because the presentation may be atypical. Patients may present with pruritus alone with minimal lesions as they are unable to mount an effective hypersensivity reaction responsible for the eczematous lesions seen in younger patients. Indiscriminate use of steroid treatment can convert the lesions into scabies incognito. Norwegian (crusted) scabies may occur in immunodepressed patients and in those who are unable to scratch efficiently. These patients can present with extensive crusted accretions containing huge numbers of mites, creating a highly contagious situation. Such epidemics are not uncommon in nursing homes.

VASCULAR DISORDERS AND ULCERATION

With increasing age, the elderly are prone to develop one of the following chronic ulcerations of the skin: stasis ulcer, ischaemic ulcer, diabetic ulcer and decubitus ulcer. The lumina of both large and small vessels becomes narrower and the wall thicker, leading to reduction in blood flow and ischaemic. Atherosclerosis, hypertension and diabetes mellitus are the usual underlying pathological processes.

Stasis ulcer is a depressing medical and social problem for the elderly. The estimated prevalence of this condition in the West is around 1%, affecting mainly the late middle and old age[8]. Stasis ulcer is frequently complicated by secondary infection, allergic contact dermatitis and failure of wound healing, and therefore tends to be recurrent and refractory to treatment.

Distinguishing painful ischaemic ulcer from stasis (venous) ulcer is important because the treatment approach is radically different. The most appropriate treatment for ischaemic ulceration due to atherosclerosis is surgical, with the aim to improve perfusion. If there is no hope of success, amputation may be required. Not only is diabetic foot prone to ulceration because of underlying atherosclerosis and hypoaesthesia from peripheral neuropathy, diabetic foot ulcers are at also risk from serious and life-threatening infections because of the predisposition of diabetics to this type of complication. Therefore it is important to emphasize the need for good foot care to this group of patients.

Decubitus ulcers, not an uncommon problem encountered by primary health care givers, are areas of ischaemic necrosis of the skin that develop over bony prominences of the dependent parts in paralysed, extremely weak or unconcious patients. They are quite common in the elderly who are bedridden from various age-related medical conditions.

WOUND HEALING

Wound healing is slowed in the elderly. The closure rate of a wound, as well as its strength, decreases with age. Limited experimental data suggests that the force required to disrupt wounds, that is the tensile strength, is diminished in the old. This supports the clinical observation that the rate of wound dehiscence following surgery rises with age.

NEOPLASIA

Neoplasia associated with ageing occurs in many organ systems, but is particularly characteristic of skin. One or more of the following benign proliferative growths are present in nearly every senior citizen: acrochordon, cherry angioma, lentigo, seborrhoeic keratosis and sebaceous hyperplasia. Many individuals have scores of these lesions. Basal cell carcinoma and squamous cell carcinoma are by far the most common human malignancies in the West. These neoplasms reflect in part the breakdown of 'growth homeostasis' in age.

PHOTOAGEING OR DERMATOHELIOSIS

The role of chronic sun exposure and cumulative skin damage has been widely publicised in the media in recent years. Sunlight, in particular UVB irradiation, is an important environmental carcinogen. It increases the incidence of basal cell carcinoma and squamous cell carcinoma as well as melanoma in sun-exposed skin. A precancerous condition, actinic keratoses, is very common in fair skinned individuals chronically exposed to the sun. A comparison of sun-exposed skin and non-sun-exposed skin in the same individual will give a good idea of the extent photoageing plays in the ageing process, as compared with "true ageing". In the last few years, interest on this subject has been rekindled as a result of the demonstration that topical retinoic acid improves photoaged skin[9,10].

With a better understanding of ageing skin and its associated problems, primary care physicians will be better able to care for the discomforts and diseases of the skin in the elderly and patients will be better able to come to terms with true ageing.

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GERIATRIC ASSESSMENT IN PRIMARY CARE

M M Thein MBBS (Rgn), (MCH) (Lond), DTCH (Liv), DCH (Glas)*
*L G Goh** MBBS, MMed (Int Med), FCFPS, MRCGP (UK)*

INTRODUCTION

Physicians assess patients in many ways. Just as paediatric assessment includes the pregnancy history, birth history and developmental history, so geriatric assessment too is unique. Broadly speaking, it is a general look at the patient irregardless of whether the patient is in the practice, at home, in hospital or in a nursing home[1]. The principles are the same, though the details may differ. The focus is on function and independence.

Who needs geriatric assessment? There are four situations where a geriatric assessment is required, namely:

- the patient seen for the first time
- the newly disabled patient
- the patient on multiple medications
- the newly confused, incontinent or patient with frequent falls.

For each of these situations there are four elements in the assessment[2], namely:

- physical examination
- mental status testing
- functional assessment
- social and economic assessment.

PHYSICAL EXAMINATION

The hallmark of disease in the elderly is the presence of multiple pathology. A review of pre-existing health is therefore necessary, noting the physical impairments and the patient's ability to cope with them. Further assessment will be needed to deal with any of the physical problems uncovered. Thus a history of falls will require an evaluation of the causes and all correctable physical impairments: trips or accidental falls, drop attacks, giddiness, and loss of balance[2]. A top-to-toe examination is needed.

MENTAL STATUS TESTING

Cognitive function is important to an elderly patient, both because its loss means suffering failure of mental capacity (and probably loss of dignity) and because it may be the only reason for requiring help with activities of daily living. Because poor cognitive function may be reversible, it must be carefully measured and worked up.

Dementia, depression, and delirium are the most common mental health problems causing cognitive impairment in older patients. Furthermore, depression can lead to malnutrition and deconditioning. As a consequence of medical co-morbidities such as feeding disorders, dementia may lead to aspiration pneumonia and malnutrition. In the demented also, urinary incontinence may predispose to pressure sores and urinary tract infection.

There are two instruments that are commonly used in mental status testing, namely the Short Portable Mental Status Questionnaire (SPMSQ) and the Mini-Mental Status Examination (MMSE). The SPMSQ (see Table 1) is a interviewer administered test. It is a quick screen of basic functions and is insensitive to minor changes. Allowance needs to be given for educational level.

* *Lecturer*
** *Assoc Professor*
Department of Community Occupatiional and Family Medicine
National University Hospital
Singapore

Table 1: Short Portable Mental Status Questionnaire (SPMQ)

	Pertinent questions	Scoring
1	What is the date today (month / day / year)?	0 - 2 errors = intact
2	What day of the week is it?	3 - 4 errors = mild intellectual impairment
3	What is the name of this place?	6 - 7 errors = moderate intellectual impairment
4	What is your telephone number? (if no telephone, what is your street number)	8 - 10 errors = severe intellectual impairment
5	How old are you?	Allow one more error if subject had no high school education
6	When were you born (month / day / year)?	Allow one fewer error is subject has had education beyond high school.
7	Who is the current President of the United States? *(substitute it with President of Singapore)*	
8	Who was the President just before him?	
9	What is your mother's maiden name?	
10	Subtract 3 from 20 and keep substracting 3 from each new number all the way down.	

The Mini-Mental State Examination (MMSE)[5] is a series of questions and tasks both spoken and written with a total score of 30. As a general screening tool, the MMSE is an excellent validated instrument; however, one must know its subtleties. It tests for very specific areas of cognition (e.g., orientation, recall, and praxis), but it does not test for abstract thinking and judgement. It is insensitive to mild cognitive impairment (a "ceiling" effect), so that patients in the very early stages of dementia may obtain scores in the normal range. It is also somewhat insensitive to severe cognitive impairment (a "floor" effect). In the primary care setting, where mildly impaired patients are most frequently seen, one may need to use more sensitive cognitive instruments. One example is the Weschsler Memory Scale, an age-normed instrument that allows comparisons of a patient's score to that of others at his age. This is an instrument for in-depth assessment of memory function. It needs to be administered by an interviewer and takes a long time to do.

FUNCTIONAL ASSESSMENT

Independence is important to everybody. The moment someone has to rely on another person for assistance with basic living tasks, a whole variety of unhappy things occur. Freedom to move around and make choices is limited. Privacy tends to disappear and dignity suffers.

Activities of daily living (ADL)

In its simplest form, functional assessment may be done by evaluating the patient's ability to carry out the basic activities of daily living, namely, feeding, continence, transfer, toileting, dressing and bathing. These are activities that an individual living at home can and must do. A number of assessment instruments have been developed to aid the doctors, nurses and the paramedical staff in measuring the activities of daily living. Although none is perfect, they all help with diagnosis and management. One such instrument is the Katz index[3] of independence in activities of daily living. This is shown in Table 2.

The activities of daily living can be tested by asking the following questions:

- Can you feed yourself?
- Can you control your urine and bowels on your own?
- Can you move from bed to chair on your own?
- Can you do your own toileting?
- Can you dress by yourself?
- Can you bathe yourself?

It has been found by Katz et al that recovering patients passed through three stages: an early recovery of independence in feeding and continence; subsequent recovery of transfer and

Table 2: Areas and Levels of Assessment in the Katz Index of Independence in Activities of Daily Living

Feeding
- Feeds self without assistance
- Feeds self except for getting assistance in cutting meat or buttering bread
- Receives assistance in feeding or is fed partly or completely by using tubes or intravenous fluids

Continence
- Controls urination and bowel movement completely by self
- Has occasional "accidents"
- Supervision helps keep urine or bowel control: catheter is used or is incontinent

Transfer
- Moves in and out of bed as well as in and out of chair without assistance (may be using object for support such as cane or walker)
- Moves in or out of bed or chair with assistance
- Doesn't get out of bed

Toileting
- Goes to toilet room, cleans self, and arranges clothes without assistance (may use object for support such as cane, walker, or wheelchair and may manage night bedpan or commode, emptying same in morning)
- Receives assistance in getting to toilet room or in cleansing self or in arranging clothes after elimination or in use of night bedpan or commode
- Doesn't go to toilet room for the elimination process

Dressing
- Gets clothes and gets completely dressed without assistance
- Gets clothes and gets dressed without assistance except for assistance in tying shoes
- Receives assistance in getting clothes or in getting dressed, or stays partly or completely undressed

Bathing
- Receives no assistance (gets in and out of tub by self if tub is usual means of bathing)
- Receives assistance in bathing only one part of the body (such as back or a leg)
- Receives assistance in bathing more than ore part of the body

Sidney Katz, Amasa B Ford, Roland W Moskowitz, Beverly A Jackson and Marjorie W Jaffe. Studies of Illness in the Aged. JAMA Sep 21, 1963: 165; 12:915.

going to toilet; and, lastly, often after discharge, the recovery of complete independence in bathing and dressing. Knowledge of the position of individual functions on the ADL scale will predict the amount of organised activity required by each function[3].

Another commonly used instrument for measuring activities of daily living is the Barthel index[4]. This is administered by an interviewer. The range of measurement in the Barthel index is slightly broader than Katz ADL Scale in that it includes stair climbing and whellchair use.

When measuring ADL, one needs to be aware that patients sometimes report falsely that they can perform an activity because they fear the repercussions of failure or simply cannot

remember. Family members may also be too emotionally involved to provide objective responses. Observing in the office what the patient can actually do may seem the perfect solution, but this, too, may prove inadequate: a patient's anxiety may make her perform better or worse than normal. Thus, combination of all three methods is ideal: ask the patient, ask the family, and observe what the patient can and cannot do.

Instrumental activities of daily living (IADL)

The categories of activities of daily living described so far can be expanded to include the instrumental activities of daily living which include writing, reading, cooking, cleaning, shopping, doing laundry, climbing stairs, using telephone, managing medication, managing money, ability to perform paid employment duties or outside work (e.g., gardening) and ability to travel (use public transportation, go out of town). People who are unable to perform IADLs generally are unable to function well at home[5].

The IADL functions can be tested by asking the patient the following 5 questions:

- Can you do shopping by yourself?
- Can you do housework?
- Can you manage your accounts and pay bills?
- Can you prepare food on your own?
- Can you travel by yourself like take a taxi, a bus or drive your own car?

The IADL not only identifies those at risk, but also pinpoints specific areas in which a patient is having problems, targeting possible areas of intervention. For example, if the patient cannot shop but is able to cook, then the needed intervention is to get food into the house or provide assistance to go to the supermarket. If the patient with mild cognitive impairment secondary to dementia can do everything but pay bills, then perhaps a family member can obtain power of attorney and take over the finances. Similarly, if a patient has difficulty taking medications, a family member or visiting nurse becomes a logical part of the home health plan.

SOCIAL AND ECONOMIC ASSESSMENT

The social assessment evaluates the patient's perception of his own health status, his environment, his family situation, financial status, and leisure activities. Is the housing affordable and accessible? What community supports does the patient have? Are there any indications of substance abuse? Who pays the bills? How does the patient spend a typical day? Social assessments are particularly important when the patient requires acute care and also becomes temporarily or permanently less able to function independently at home.

CONCLUSION

Geriatric assessment is a comprehensive evaluation of the four elements of the elderly patient's health namely, physical, mental, functional and social health. It is indicated when faced with a patient with multiple problems seen for the first time, a newly disabled patient, the patient on multiple medications and the newly confused, incontinent or patient with frequent falls. All the four elements need to be evaluated to yield the necessary information for the total management of the patient.

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WORLD HEALTH ORGANIZATION PUBLICATIONS

NEW BOOK ANNOUNCEMENTS

PREVENTION OF DIABETES MELLITUS

Report of a WHO Study Group
Volume 5: European Region
Technical Report Series, No. 844
1994, viii + 100 pages
ISBN 92 4 120844 9

This book reviews current and potential opportunities for the prevention of diabetes mellitus and the improvement of prognosis through the early detection and treatment of complications. Drawing on striking recent progress in knowledge about the disease, the report aims to identify specific preventive interventions, at primary, secondary, and tertiary levels, that have been shown to be feasible, effective, ethical, and thus most likely to represent a wise investment of resources. Potential interventions deserving further study are also clearly indicated.

By reviewing recent research advances and interpreting their implications, the report also aims to help health care managers and decision-makers think through all the factors - from the reliability of screening tests to the costs of treatment - that need to be considered when planning programmes for prevention. Throughout the report, recommended lines of action are specific to the different challenges posed by insulin-dependent diabetes and non-insulin-dependent diabetes and related disorders.

The report has eight main sections. The first reviews the global epidemiological situation, discusses the impact of diabetes on individuals and society, and outlines the different approaches to prevention. The second section sets out the widely-accepted definition, classification, and diagnostic criteria for diabetes proposed by a WHO expert group in 1985.

Opportunities for primary prevention are considered in separate sections devoted to insulin-dependent and non-insulin-dependent forms of the disease. While primary prevention of insulin-dependent diabetes remains confined to research studies, the report cites several opportunities for preventing the development of non-insulin-dependent diabetes, impaired glucose tolerance, malnutrition-related diabetes, and gestational diabetes.

Secondary prevention is covered in the next section, which discusses the factors to be considered when planning screening programmes to detect asymptomatic individuals who have the disease or are at high risk of developing it. Guidance on the appropriate use of screening programmes considers the purpose, beneficial effects, requirements, costs, and limitations of three different approaches: population, selective, and opportunistic.

The most extensive section, on tertiary prevention, provides a detailed guide to the many actions that can help to prevent or delay the development of complications and thus improve prognosis considerably. Each of the main acute and chronic complications of diabetes is discussed in terms of predisposing factors, early warning signs, methods of diagnosis, interpretation of findings, and appropriate preventive interventions. Since many of these disorders are asymptomatic in their early stages, the report gives particular attention to the need for better education of patients and physicians.

The remaining sections discuss the purpose, design, function, and operation of national programmes for diabetes prevention and control, and outline several areas where further research is urgently needed. The report concludes with a series of annexes offering practical advice on screening methods and tests, the design of an epidemiological survey, and the planning of a national programme for prevention and control, which is discussed in more detail in *Guidelines for the Development of a National Programme for Diabetes Mellitus (WHO, 1991)*.

— Of Related Interest —

GUIDELINES FOR THE DEVELOPMENT OF A NATIONAL PROGRAMME FOR DIABETES MELLITUS

G E Reiber and H King
1991, vii + 70 pages
WHO / DBO / DM / 91.1

This book provides a step-by-step guide to the development of a national programme for the prevention and control of diabetes mellitus. Noting that many countries are struggling to cope with the growing burden of diabetes, the book aims to advise health planners and decision-makers on the development of policies and strategies that increase the opportunities for prevention and improve the quality of care — even when resources are limited. Though emphasis is placed on the development of country-wide programmes, the general principles of planning and implementation outlined in the book can also be applied to provincial or local situations.

The book opens with a concise review of what is known about the different forms of diabetes, emphasizing opportunities for cost-effective prevention and improvements in the quality of care. Subsequent sections identify the general principles that should guide programme planning and set out five major goals of a national programme, moving from the prevention of diabetes, through the reduction of complications, to the support of further research.

The most extensive sections provide detailed guidelines for the planning and implementation of national programmes for prevention and control. Advice on planning centres on the steps involved in the preparation of a medium and log-term programme. Recommended procedures are given for the collection of data during the assessment phase, the setting of objectives, the determination of the most appropriate methods and strategies for reaching these goals, and the estimation of costs for each objective. The section on implementation gives particularly detailed advice on strategies and priorities for preventive interventions at the primary, secondary, and tertiary levels. Readers also receive guidance on the establishment of rehabilitation and special assistance services and on the important question of when screening is justified as a cost-effective preventive measure. The remaining sections discuss programme evaluation and explain how the WHO guidelines can be adapted to the local situation.

Further practical information is provided in a series of eight annexes, which reproduce a number of key statements, diagnostic guidelines, model forms, and the ICD-10 codes for diabetes mellitus.

"... an excellent framework from which public health officials and diabetologists can develop and build national diabetes programs... The authors should be commended for providing a readable and practical guide that will benefit people with diabetes of all ages and in all countries..."
— International Diabetes Federation Bulletin

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Authors are invited to submit material for publication in the Singapore Family Physician on the understanding that the work is original and that it has not been submitted or published elsewhere.

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* Send three copies of all elements of the article: summary, text, references, tables and illustrations. The author should retain a personal copy.

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* The title should be short and clear.

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The text should have the following sequence:

* Introduction: State clearly the purpose of the article.

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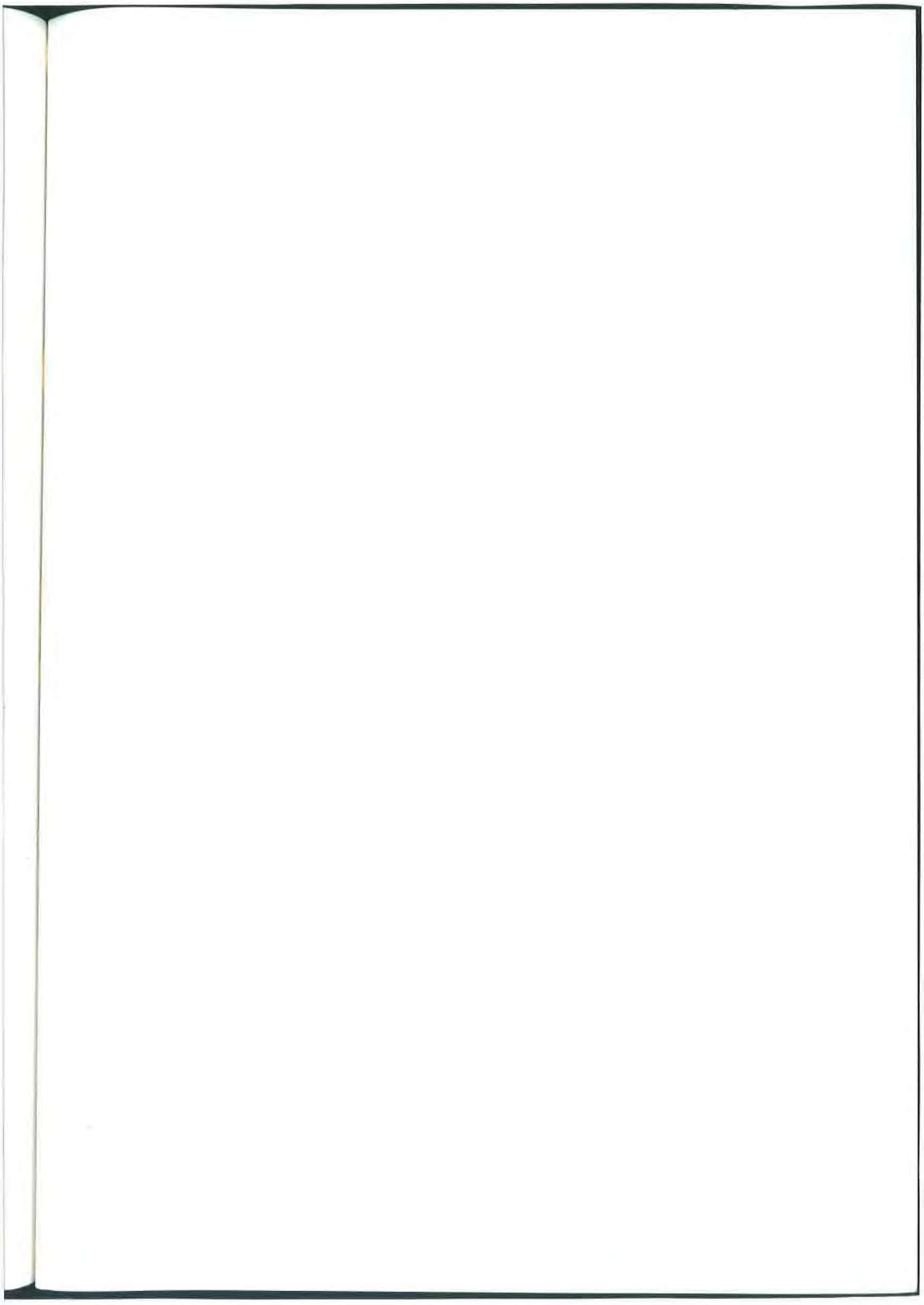

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