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Gary Cheuk
Editors

Advanced Age Geriatric Care

A Comprehensive Guide

 Springer

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Preface

The oldest old or those who are over the age of 85 is the fastest growing segment of most developed countries. In the United States, the oldest old is projected to double from 4.3 million to 9.6 million by 2030. The inevitable consequence is that there will be an increase in the prevalence of older persons with chronic diseases, multiple coexisting pathologies and neurodegenerative diseases.

This will pose significant challenges on many levels such as health care, social welfare, transport and residential infrastructures. To a clinician, the care of the oldest old is unique in that it is an area where there is scant clinical evidence to guide practice. The oldest old are often excluded from drug trials, and their treatments are largely based on findings extrapolated from that of the younger old. Furthermore, amongst the oldest old, physiologically they are more diverse than other segments of the population. Their demographic characteristics are unparalleled and different compared to that of the younger old. Several studies have drawn attention to the differing attitudes amongst health professionals towards older persons, and many show prejudice because they are old. As a result, the use of age as a criteria in determining the appropriateness of treatment is of very limited validity.

The increased life expectancy of the population since the early 1900s had been built on the improvement of living conditions, diet, public health and advancement in medical care. With this we have seen a steady decline in the age-specific prevalence of vascular and heart diseases, stroke and even dementia. Older persons nowadays are healthier than their counterparts decades ago. More importantly than in any other age group, the care of the oldest old must be individualised; management decisions should be made taking into consideration the older persons' expressed wishes, quality of life, function and mental capacity.

There is a desperate need for good quality research and data about ageing and age-related problems in the 85 years and older which could help improve their health-care decisions and planning. A proper understanding of the age-related changes in the older person and the ability to distinguish the reversible versus the irreversible conditions are vital to developing appropriate corrective and remedial strategies. Care of the oldest old is a subject in which there is much scope for new writing and debate as this population grows.

Our aim is to create a greater awareness especially amongst the primary care physicians of the complex issues encountered in caring for the oldest old. This book is designed for the primary care physicians, physicians, junior medical officers, specialty nurses and medical students. It is divided into three parts, General Considerations, Chronic Diseases and Geriatric Syndromes. Each chapter provides a summary of important and essential information under the heading of Key Points. Case studies are included in some of the chapters to highlight the principles of management.

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Disclaimer

Continuous development and research in the fields of medicine, science technology and health care result in on-going changes in the domains of clinical practice as evidence continues to evolve rapidly. We have taken reasonable care and effort to provide material which are current, accurate and balanced at the time of publication.

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We have acknowledged the sources and works of the cited sites at the appropriate locations in the text and references. We have used the source materials in the sense of fair use and extend our apology for any oversight. Readers are advised to cross-reference and confirm points relevant to them.

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Gary Cheuk, MBBS (UNSW), FRACP graduated from the University of New South Wales in 1985 with honours. He commenced basic physician training in Dunedin (New Zealand) and St George Hospital (Sydney). He underwent advance training in geriatric medicine at Concord and Westmead Hospitals and was granted Fellowship of the Royal Australasian College of Physicians in 1993. In the following year, he became Director of Rehabilitation and Aged Care Service at Blacktown-Mount Druitt Hospital, a position he occupied until 2015. Dr. Cheuk has been involved in undergraduate and postgraduate teaching for many years. Service planning and development are areas of interest for Dr. Cheuk, and he was instrumental in the establishment of the Stroke Unit at Blacktown Hospital and the building of the Rehabilitation Hub at Mount Druitt Hospital. His clinical interests include dementia care, Parkinson's disease and related disorders, stroke medicine and musculoskeletal diseases in older persons.

Part I

General Considerationss



Ageing and Longevity

1

Nages Nagaratnam

Historical Perspective

In ancient Greece, based on the Hippocrates' system of four humours, ageing was attributed to unavoidable loss of body moisture due to the gradual assimilation of innate heat [1]. It was generally believed that the ancient Greeks and Romans died young at the age of 40. This myth was widespread and accepted but is scientifically incorrect, for in calculating the life expectancy, it had not taken into account such factors as infant [2] and maternal mortality rates [3] prevailing at that time. In the past 100 years infant mortality has changed [4]. Once infant mortality was eliminated, the life expectancy at 5 years was 75 for men and 73 for women [5]. The higher mortality rate in the male was related to work, violence or accidental injury and was matched by the high female mortality due to pregnancy and childbirth [3]. Infectious diseases and non-communicable diseases caused deaths equally in men and women [6]. The human mortality rate has improved from the time of the fall of the Roman Empire [7]. Since then life expectancy at birth has improved, and a definite increase was seen from the middle of the nineteenth century [4]. With the discovery of the causes of many diseases, a decline in the mortality rates was evident [8]. This decline was more striking among females than among males [6]. Non-communicable diseases became the principle causes of death throughout the twentieth century, and a female ascendancy arose and extended [3]. Longevity has been associated with occurrence of menopause at a high age and fecundity at an older age [9]. It has been suggested that loss of ovarian hormones instigate immunosenescence which increases mortality and morbidity due to infections and age-related pathologies [3].

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Ageing

Ageing is inevitable. In ageing there is a progressive decline or loss of physiological functions at the molecular, cellular and organismal levels [10] leading to increased susceptibility to disease and death [11]. It is the outcome of both environmental and genetic factors, caused by DNA damage and genetic dysregulation [12].

Molecular Causes

Ageing process and increase in the incidence of age-related diseases are closely associated with a decline in mitochondrial function [13]. The mitochondria have a vital role in the ageing process, and age-associated damage may be due to mutagenic damage to nuclear or mitochondrial DNA (mtDNA) [14]. Increase in age-associated accumulation of mtDNA mutations [11] and increased mitochondrial oxidative stress contribute to human ageing [11]. More recent evidence indicate that ageing-associated mtDNA mutations are due to clonal expansion of mtDNA replication errors rather than to damage accumulation [15, 16]. Mitochondrial dysfunction results from clonal expansion of mtDNA mutations [17].

The telomeres have an important role in cell fate and ageing [18]. The telomeres are DNA segments attached to the ends of the chromosomes where the replication enzymes could latch. With each replication, the telomere shortens in all the dividing cells. To compensate for the shortening, the enzyme telomerase adds repeated telomere sequences [19] and reconstructs the telomeres at the chromosome ends [19]. The reconstruction is limited to most somatic cells [18], and most human cells do not maintain sufficient telomerase activity to fully preserve telomeres [20]. The deteriorated telomeres institute a continuous DNA damage response [21] which begins and perpetuates the irreversible growth arrest [22, 23].

Cellular Senescence

In cellular senescence there is a permanent arrest of cell proliferation [24–27]. It is involved in a number of biological processes and is believed to have important roles in development, tissue repair [26] and susceptibility of tissues to disease [24]. Senescent cells contribute to ageing and age-related diseases [25, 26, 28]. Two types of senescence have been described, telomere-dependent replicative senescence and the other stress-involved premature senescence [25]. When too many critically short telomeres accumulate, cell death (apoptosis) or irreversible growth arrest (cellular senescence) results [18]. Several pathways of cellular senescence have been demonstrated, and telomerase suppression is one such pathway [19].

Physiological and Structural Changes in the Organs

Normal ageing is associated in both physiological and structural changes in the organs and systems. Box 1.1 shows some of the changes that occur in some systems.

Box 1.1. Some Structural Changes with Ageing

Cardiovascular	Cardiac myocytes increase in size, changes in the conducting system, valves sclerosis with calcification, arterial wall thicken with stiffening, endothelial dysfunction
Respiratory	Changes in thoracic cage, airways changes, bronchioles and alveolar ducts
Digestive tract	Neuromuscular degeneration of enteron neurons
Hepatobiliary	Liver volume decreases, decrease in hepatocytes with increase in size of the remaining
Haematopoietic	Dysregulation of mechanisms controlling haemopoiesis occurs
Renal	Renal reserve is reduced with decrease in kidney size and cortical loss
Reproductive	Male: Testicular mass decreases, prostate enlarges Female: Vaginal epithelia thin, cervix shrinks, ovaries become fibrotic
Nervous system	Cerebral atrophy, blood flow reduced, changes in the hippocampus and in white matter
Skin	Structural changes in all structures of the skin
Endocrine	Pancreas: Few morphological changes Thyroid: Number and size of follicles and colloid content decrease, becomes nodular with lymphocytic infiltration
Bone	Structural changes in bone architecture, protein content of bone matrix

Theories of Ageing

Ageing is associated with the gradual loss of function of cells and organs with death as the ultimate outcome resulting from the accumulation of changes over time [29]. Over the years there have been numerous theories on ageing [30]. The evolutionary theories of ageing are now considered by many gerontologists as the basis for the explanation of the ageing process [31]. In humans, modern biological theories can be divided between damage or error theories and programmed theories of ageing, but neither of them are fully satisfactory [32] (Box 1.2). Programmed theories imply that throughout the lifespan from conception, ageing is regulated by biological clocks and deliberately limit their lifespan in order to achieve a direct evolutionary benefit [33, 34]. There are three subcategories, namely, endocrine theory where the biological clocks act through hormones to control the pace of ageing, the programmed longevity theory result from sequential switching on and off of certain genes and the immunological theory, with the immune system programmed to wane leading to increased vulnerability to disease and hence ageing and death [32].

Box 1.2. Theories of Ageing

Programmed theories

Endocrine theory

Immunological theory

Programmed senescence theory

Non-programmed theories (damage theories)

Wear and tear theory

Cross-linking theory

Rate of living theory

Free radical theory

The thymus may play a significant role in ageing in that, as age advances, it undergoes reduction in size with corresponding reduction in the immune system. This has led to the immune suppression theory. The immune function wanes with age, and the immune system undergoes age-associated changes [35], and the ageing of the immune system is known as immunosenescence. Most of the parameters affected by immunosenescence are largely under genetic control. The genetic component is involved in cell maintenance systems that play an important role in the achievement of longevity. In the elderly alterations occur in the innate/natural and clonotype immunity [36, 37], and the former is largely preserved, whereas the latter reveals appreciable deterioration. These alterations are brought about by the involution of the lymphoid tissue, continuous exposure to a variety of antigens, accumulation of memory/effector T cells and debilitation of the naïve cells [38].

In the course of evolution, the human organism is set to live 40 or 50 years [39]. Presently in a period not foreseen by evolution, the immune system has to be active for longer periods of time. This alteration in the immune system promotes chronic inflammation [40] resulting in damage to the organs late in life which is deleterious for longevity. It is the pathological basis for age-related diseases such as diabetes, cancer, cardiovascular disease and Alzheimer's disease [40]. The pathophysiology of age-related diseases is the result of progressive initiation of inflammatory responses due to continued antigenic stress which involves the immune system throughout life. This immune activity of the innate immune system in later life is evident by the presence of elevated markers of inflammation such as TNF-alpha and interleukin 6(IL-6). The elevation of these markers of inflammation is associated with age-related chronic diseases, disability [41] and death.

Structural damage theories, also referred to as non-programmed ageing theories, are based on evolutionary concepts [33], which suggest that ageing is caused by environmental insults resulting in cumulative damage from the molecular level outwards to the tissues and organs of the body [32]. The lifespan variation between species is explained by differences as to how they resist those processes [33]. The damage theories include the wear and tear theory, cross linking theory, rate of living theory and free radical theory. The wear and tear theory suggests that damage to cells over years eventually wears them out killing them and then the body.

The most widely accepted structural damage theory is the free radical theory of ageing [42]. The term 'free radical' is used to describe any molecule that differs from the conventional molecules in that it has a free electron, a property that makes it to react with normal molecules in a destructive way [43]. They are formed by the cells own metabolic reactions and are also present in the environment [42]. Ageing occurs as a result of the relentless and lifelong attack by these free radicals, derived from oxygen [44] causing damage to the cells which spreads then outwards to involve the tissues and organs.

The mitochondrial electron transport system is constantly generating reactive oxygen species (ROS) [45]. The mitochondrial theory suggests that senescence is the result of damage caused by ROS to the mitochondrial genome in post-mitotic cells. Mitochondria are implicated in the fundamental ageing process as well as in the loss of functional characteristics of ageing [46]. In order to ensure mtDNA integrity and mitochondrial function, numerous cellular mtDNAs are wrapped together with proteins and nucleoids to form a shield against ROS and nitrogen species (RONS) [16]. According to Vina et al. [44], all the phenomena expounded by previous theories of ageing such as the loss of immune response, of somatic mutation or catastrophic theory of ageing are explained by these two theories [46].

Other structural damage theories are the molecular cross-linkage theory and somatic DNA damage theory, among others. Not all the DNA damages that are formed in the cells are repaired, for the DNA polymerases and other repair mechanisms cannot keep up with the defects, hence some accumulate [32]. According to the waste accumulation theory, the waste products resulting from normal metabolic processes accumulate and compromise normal cell function.

There has been some debate whether ageing in humans is purposely genetically programmed for living too long creates a evolutionary disadvantage or ageing is non-programmed for there is no such disadvantage [32]. Summarily rejected, programmed ageing is clearly conflicting with the mechanics of the evolution process and is impractical [33]. Recent developments have however strikingly altered this, and programmed mammal ageing now has a better evolutionary basis than non-programmed ageing [33].

Life Expectancy

Life expectancy is the term used to denote the average lifespan of an entire population, and lifespan is the actual length of an individual's life. Life expectancy has increased dramatically, and overall women live longer than men. Today if a man reaches 65, he can reasonably expect to go on to 80 and a woman probably see 84. In Sweden, France, England and Wales, life expectancy at age 85 rose by only 1 year between 1900 and 1960 but by almost 2 years between 1960 and the end of the twentieth century [47].

Certainly, different people age at different rate. Life expectancy is affected by a number of factors, and the significant factors are genetic, gender, diet, life style, exercise and access to health care. In the developed world, the life expectancy will continue to rise, but recent increases in life style diseases such as heart disease, hypertension, diabetes and obesity may slow or reverse this trend. Nevertheless, currently we are living longer. There are a number of reports that ageing has been accompanied by decline in disability at the older ages [46]. Between the years 1980 and 1990, the decline in disability was 0.5–1.0% per year [48], and Liao et al. [49] found a decline of 1.53% per year between 1984 and 1995.

Longevity

The centenarians are increasing in numbers globally [50]. There are different types of ageing, and distinctions must be made between chronological ageing and other forms, namely, biological, social and psychological. Chronological ageing refers to how old the person is. Biological ageing is the physical state as age advances. Social ageing is how the individ-

ual should react socially. The different types may occur singly or in combination and relate to and depict the ageing process.

A study of nonagenarians and centenarians in Switzerland between 1860 and 2001 indicated a strong increase in their numbers as compared to other countries. This was largely attributed to the decline in mortality after the age of 80 as from 1950 [51]. Similarly increasing numbers of centenarians are seen in Japan, New Zealand, France and United States of America [52–54].

Today much research is being done as to why more people are living to their 80s, 90s or 100s. Genes may not be all that matter. There are other factors such as epigenetic, environmental factors and life style factors, and the last furthers longevity at all phases of human development [55]. Proper understanding of the normal age-related changes and their significance is necessary to develop appropriate corrective and remedial strategies. Ageing-related changes must be distinguished from age-related diseases. Ageing-related changes can adversely affect health and functionality (requires therapeutic strategies), predispose to disease (the need for risk evaluation of the older adult) and reciprocally interact with illness resulting in altered disease presentation, response to treatment and outcome.

Socio-environmental factors contribute to the observed decline in mortality and morbidity [47]. Increase in education, nutritional intake, decline in infectious diseases [47], improvement in medical care and better quality of life caused by improved health status have resulted in the overall increase in life expectancy [36]. It is well known that the elderly are susceptible to infectious diseases, autoimmunity and cancer and decreased responsiveness to vaccination directly or indirectly to age-related changes in the immune system [36]. This is also true of age-related diseases such as cardiovascular and neurodegenerative diseases, diabetes and osteoporosis, and in all of these conditions, an immune component is incriminated in their pathogenesis [36].

The development of cancer is almost unavoidable as mammalian organisms age [56]. With advancing age the senescent cells accumulate disrupting the tissue environments and may synergise mutation accumulation increasing the risk of cancer [56]. The increase in frequency of cancer with age may be due to pro-inflammatory status of ageing [57]. This pro-inflammatory condition is referred to as chronic antigenic load which continuously stimulate innate immunity and seems to favour the onset of age-onset diseases such as dementia, atherosclerosis, osteoporosis and neoplasia [57]. With people living longer the frequency of Alzheimer's (AD) and related neurodegenerative conditions increases. Sequential testing by functional magnetic resonance imaging of the brain has shown that the response to tumour necrosis factor inhibitors (TNFi) in patients with rheumatoid arthritis (RA) depends on brain activity [58]. Neuroinflammation has been incriminated in the activation

of microglia and astroglia which in turn activate the expression of pro-inflammatory cytokines and chemokines in Alzheimer disease and in a variety of other conditions [59]. Both diseases AD and RA belong to those that accelerate ageing, in those afflicted [36].

Franceschi and Bonafi [60] studied centenarians over a 10-year period to address the biological basis of ageing and longevity. They proposed the term 'inflammaging' for the chronic inflammatory status which characterizes ageing and which is largely under genetic control. They considered inflammaging to be the most important compelling force in age-related pathologies such as dementia, diabetes, atherosclerosis and sarcopenia among others all of which show an inflammatory pathogenesis.

Genetics and Longevity

Very long life beyond 90 years appears to have a strong genetic basis [61]. Genetic factors account for approximately 20–30% of the overall variation in adult lifespan [62, 63, 65, 64]. Genetic influences on lifespan are least before the age of 60 but increase thereafter [62], and heritability is pronounced at the oldest ages [66]. Hjelmborg et al. [62] in a large population-based study of twins in a more than 90-year follow-up found evidence of familial clustering of longevity. A genetic component to longevity was suggested by the clustering of siblings and families with long-lived people.

New research by scientists at the Albert Einstein College of Medicine of Yeshiva University found that the gene variant linked to living a long life – to 90 and beyond – also helps them to retain their memories and think clearly [67]. The 'longevity gene' has been linked with exceptionally long life. According to the researchers, the gene variant alters the cholesterol ester transfer, and this effect may protect against dementia as well as promote longevity [67]. Insulin-like growth factor-1 (IGF-1) affects particularly every cell type in the body, and animal studies have shown that mutations of the genes involving IGF-1 signalling pathway impaired growth but affected longer lifespan [67]. The investigators also reported that female children of centenarians had 35% higher IGF-1 plasma levels than the controls. They concluded that by interfering with IGF-1 signalling, these gene mutations may play a role in extending human lifespan [67]. There are other genetic pathways which may through effects on ageing increase the lifespan, and these include those that affect telomere length, those that regulate DNA repair and nuclear structure, those that regulate cellular stress such as sirtuins and possibly those that regulate inflammatory response [68]. Longevity is associated with some environmental and life style factors interacting with genetic factors [65]. In a population, survival variations among individuals are affected by life style, social and cultural effects [65].

Diet and Longevity

Anti-inflammatory dietary intervention is an important avenue towards promoting healthy ageing, and the aim of this exercise is to diminish innate immune response that contributes to chronic diseases [69]. Rees et al. [70] used a placebo-controlled study design with multiple doses of an EPA-rich fish oil concentrate (EPA, a n-3 fatty acid – eicosapentaenoic acid). The editorial concluded that the *anti-inflammatory dietary intervention* does have a role in promoting healthy ageing, but such interventions should be evaluated for risks.

Dan Buettner [71] in his book *The Blue Zones* recorded five locations in the world with the highest percentage of centenarians, and the five blue zones were Okinawa (Japan), Icaria (Greece), Loma Linda (California), Sardinia (Italy) and Nicoya (Costa Rica). He suggested nine life style solutions, namely, physical activity, relieving stress, participation in a religious community, reduction in calories, drinking red wine in moderation, family priority, have a defined goal or purpose and a diet based on beans, whole grains and vegetables.

The most researched study on increasing longevity is dietary restriction. Fairman et al. [72] published evidence of *dietary restriction and low ratio of protein to carbohydrate* extended longevity in malarial vectors. The hormone fibroblast growth factor 21 (FGF21) is increased by diets low in protein and high in carbohydrates in mice, and mice with elevated levels of FGF21 lived longer [73]. Several studies among the elderly have shown that the overall *Mediterranean diet pattern* is associated with longer survival and is more important than single nutrients [74]. Trans fats from partially hydrogenated vegetable oils which is strongly associated with risk of heart disease are absent in traditional Mediterranean diets (MDs) [75]. The traditional MDs include a high intake of cereals, legumes, nuts, vegetables and fruits; a relatively high fat mostly provided by olive oil (it allows the consumption of large quantities of vegetables as legumes in the form of salads and cooked food) [75]; moderate to high fish, low red meat and meat products; moderate alcohol, red wine; and moderate to small amounts of dairy products [76].

Key Points

In ageing there is a progressive decline or loss of physiological functions that occurs at the molecular, cellular and organismal levels [10] leading to increased susceptibility to disease and death [11].

The telomeres have an important role in cell fate and ageing [18].

When too many critically short telomeres accumulate, cell death (apoptosis) or irreversible growth arrest (cellular senescence) results [18].

In humans modern biological theories can be divided between damage or error theories and programmed theories of ageing, but neither of them are fully satisfactory [32].

Genetic factors account for approximately 20–30% of the overall variation in adult lifespan [62, 63, 64, 65], and genetic influences on lifespan are least prior to the age of 60 but increase thereafter [62].

Several studies among the elderly have shown that the Mediterranean diet pattern is associated with longer survival and is more important than single nutrients [74].

The most researched to increase longevity is dietary restriction [72], published evidence of dietary restriction and low ratio of protein to carbohydrate extended longevity.

Multiple Choice Questions (MCQs)

- The following are true relating to ageing process, *except*:
 - The telomeres have an important role in cell fate and ageing.
 - To compensate for the shortening, the enzyme telomerase reconstructs the telomeres at the chromosome ends.
 - Age-associated damage may be due to mutagenic damage to nuclear or mitochondrial DNA.
 - Telomerase suppression is the only pathway of cellular senescence.
- The following statements are true regarding theories of ageing, *except*:
 - The evolutionary theories of ageing are no longer considered as the basis for the explanation of the ageing process.
 - In humans modern biological theories can be divided between damage or error theories and programmed theories of ageing.
 - Ageing occurs as a result of the relentless and lifelong attack by these free radicals derived from oxygen.
 - In the immunological theory, the immune system is programmed to wane leading to increased vulnerability to disease and hence ageing and death.
- The following are true in relation to longevity, *except*:
 - A genetic component to longevity is suggested by the clustering of siblings and families with long-lived people.
 - Genetic factors account for approximately 40–50% of the overall variation in adult lifespan.
 - Several studies among the elderly have shown that the overall Mediterranean diet pattern is associated with longer survival.

D. In mice the fibroblast growth factor 21 (FGF21) is increased by diets low in protein and high in carbohydrates and those with elevated levels of FGF21 lived longer.

Answers to MCQs

1. D
2. A
3. B

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Historical Perspective

Over the years there have been striking changes in end-of-life situations [1] such as death with dignity, hospice, palliative care, right to die, physician-assisted death and euthanasia brought about by evolving health systems [1]. End-of-life decisions have become increasingly complex [2] and often involve consideration of psychosocial, spiritual, legal or medical factors [3]. In the Western world, the principle of individual autonomy and informed consent are paramount, whereas in other cultures, the community decision-making is the standard [3]. Since the 1970s the 'right-to-die' movement gained ground and influenced end-of-life care decisions [4]. There is a range of views on euthanasia and assisted suicide. The Netherlands and Belgium legalized euthanasia and assisted suicide in 2002 [5]. In Germany and Switzerland, assisted suicide is allowed under certain circumstances. In France it is against the law [5]. Any constitutional right of terminally ill patients to physician-assisted suicide was without exception rejected in 1997 by the United States Supreme Court [6] and likewise in the *Washington v Glucksberg* case [7]. In five states however doctors are allowed to provide lethal dose of medicine to the terminally ill [5]. Australian governments continue to resist legalizing euthanasia and assisted suicide [8].

The literature abounds with description of different resuscitation methods. Expired air respiration had been described in the Bible [9], and it was not until 1744 when Tassach revived a coal miner by this technique [10]. The American Indians introduced smoke and Dutch tobacco fumes into the rectum, to stimulate ventilation, and the ancient Chinese immersed their dying victims in hot oil baths [11]. In the

sixteenth century, artificial respiration began and progressed with rise and fall of mouth-to-mouth method and ended up in 1958 with confirmation of the supremacy of this technique [12]. Mechanical ventilation using bellows was used in the sixteenth century [9], and by the nineteenth century, both were abandoned. In 1792 James Curry used electrical defibrillation successfully to revive two patients [13]. The history of cardiopulmonary resuscitation (CPR) evolved over many centuries. In 1874 open-chest cardiac massage began and gained ascendancy [12]. It was only after the landmark paper of Kouwenhoven in 1960 that modern technique of CPR [9], an effective means of ventilation, closed-chest cardiac massage, and external defibrillation of the heart, was established [11].

General Considerations

'End -life is defined as the time when health care providers would not be surprised if death occurred within about six weeks' [14]. End-of-life care not only includes terminal care but also, more widely, all conditions that have become progressive and incurable. Terminal care is care of a person in his or her final hours or days before death occurs [15]. The Göteborg H70 longitudinal study of ageing and other studies showed that those who die between 70 and 85 years of age generally were very ill in the months or years before death. In contrast, individuals who live more than 85 years were seen as what has been described as in 'physical, social and mental vitality or healthy ageing' [16]. This would suggest that the oldest old are generally well with a rapid decline compared to the younger who die earlier.

Profile of People of Advanced Age

Risk factors for institutionalization are many, and a large number of the oldest old are in nursing home facilities. In a study of 103 patients aged 90–99 years with an average age of 92 years

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and a male to female ratio of 1:3, 55% of the patients hospitalized were from nursing care facilities, and 45% either lived by themselves or with their spouses/relatives who may be their carers [17]. For a female aged 90 or over, the probability of entering a nursing home is 95% and for men 60% [18]. In a retrospective analysis of the profile of people of advanced age, Zhao et al. [19] found that functional and cognitive impairments were higher for those who died around 90 years or older (especially women) compared with those who died aged 85–89 years. Physical impairments and functional limitations have a considerable impact on daily life activities. Disability on activities of daily living (ADL) and instrumental activities of daily living rose from 59.1% before to 85.4% after the age of 90 and cognitive impairment (Mini-Mental State Examination score < 21) from 41.7% to 69.4%, respectively. In spite of the close proximity to death, 60.5% and 67% rated their health positively [19]. The Danish 1905 cohort study involving 2249 nonagenarians found that a high disability level, poor physical and cognitive performance and self-rated health (especially women) predict mortality [20]. Functional and cognitive assessments are an important part of the evaluation of the oldest old. These two studies demonstrated that in the oldest old, physical and cognitive disability predicts mortality, and such factors as smoking and obesity have little relevance.

Although the rates of chronic disease was high in the oldest old, the Newcastle 85+ cohort study found that overall 20%, particularly men, had no difficulty with ADLs, but a substantial proportion require 24-hour care at home or nursing home [21]. In a Swedish study, the ELSA 85 project, a population-based survey of 85-year-olds showed the majority have good functional ability and are low users of health care [22].

Chronic Conditions and Mortality in the Oldest Old

In a review of forensic autopsies in 310 patients aged >90 years, the investigators found in 85% death was natural, and the more common causes were ischaemic heart disease (23%), bronchopneumonia (12%), fractures (9%), acute myocardial infarction (8%), cerebrovascular accident (6%) and ruptured aneurysm (5%) and in 19% multifactorial. In 15% the causes were unnatural, and the commonest cause was accident [23]. In another clinical and necropsy study of octogenarians, nonagenarians and centenarians, the cause of death was cardiac (47%), vascular noncardiac (14%) and noncardiac nonvascular (39%) [24]. Deaths due to noncardiac nonvascular causes increased with increasing age [24]. In Australia one-third (seven million) of the population was reported as having at least one of the following chronic conditions, asthma, type 2 diabetes, coronary heart disease, arthritis, osteoporosis, COPD, stroke and hypertension and proportion increased with age [25].

Critical Ill in the Oldest Old

Studies of critically ill oldest old patients (>90 years) admitted to the intensive care unit (ICU) found that very old age was not directly associated with ICU mortality [26]. Death occurred predominantly around 30 days after ICU discharge though higher compared to younger patients, despite the higher risk of dying, ICU care should not be denied to this population [26].

Transition in Place of Care

Data on the oldest old transitions in place of care at end of life are scanty. In a recent study [27], the place of residence or care of the over 85-year-olds less than a year before death and their place of death were examined. It revealed that two-thirds were living in the community when interviewed less than a year before death and less than one-third who had lived at home died there. Care homes were the usual place of death in the majority of people living there (77% in residential homes and 87% in nursing homes), and 15% of deaths in acute hospital came from care homes [27]. In the United States among the people who preferred to die at home, 55% died in the hospital [28]. This was largely attributed to the practice patterns at the hospital [29].

There have been several studies questioning the quality of care in this age group. Rosenwax and colleagues [30] in their study found that 96% of the patients (aged <65 to >75 years) were admitted to hospital during the last year of life with an average of eight admissions. Most of the admissions were during the last 3 months of life and 60% died in hospital. In the age group 75 years or over, 58% had cancer and 42% had non-cancer conditions. Of the patients in their study, 70% of those found suitable for palliative care had at least one visit to the emergency department [30].

End-of-Life Decisions

Current demographic findings predict an increase in the elderly population, more so the very elderly, and this trend is likely to continue. This means there will be greater rates of cognitive decline which strongly require increased awareness of end-of-life decisions and advanced care planning [31]. Many of the older adults do not give thought as to how to handle their end-of-life care [28], and this has led to greater reliance on the primary care providers and medical practitioners when end-of-life decisions are made [32]. End-of-life decisions in Australian medical practice involving active medical practitioners from all Australian states and territories with opportunities to make end-of-life decisions had been studied. It was found that medical end-of-life deci-

sions were made in 30% of all Australian deaths with the explicit intention of ending the patient's life of which 4% were in response to a direct request from the patient [33].

With the advance in medical knowledge and technology over the past few decades, health professionals are confronted with difficult and complex ethical dilemmas. Prager [34] enunciated four principles of medical ethics, 'to do good and don't do bad', patients with capacity have the right to refuse or consent as to their health needs, concerns about the allocation of health-care resources and the respect for the sanctity of human life.

Majority of the elderly would like to be involved in the choice to influence decisions about their care, place of care and cardiopulmonary resuscitation (CPR) [35]. There are three situations that may raise ethical issues. Typically the ethical issues for the elderly include (i) decision-making for those with and without the capacity, (ii) the right to prepare advance directives prior to the advent of incompetency and (iii) the right to use or refuse life-sustaining technologies [36].

(i) The incapacitated patient

Standards of substituted judgement, best interests and advance directives are three existing methods of surrogate decision-making [37, 38]. All of them have limitations [38, 39]. Substituted judgement requires the surrogate to approximately match patients' wishes had he or she were capable of making decisions [39, 40] and would have some insight into patient's preferences when patients' decision-making capacity was intact [39]. The elderly preferred family members as surrogate decision-makers [41] who often have difficulty in making decisions. It is advantageous if the surrogate decision-maker is known ahead and had discussed with the patient his or her preferences [42].

To test patients' preferences by surrogate decision-makers, Uhlmann et al. [43] in their study found that physicians and spouses often did not understand elderly outpatients' resuscitation preferences. In another study neither the physicians nor nurses systematically understood their elderly patient's resuscitation preferences [44]. Hence it is most unlikely that surrogate decision-makers will render proper substituted judgements [43]. There is convincing evidence that the use of substituted judgement has overwhelming weaknesses [8, 40, 45].

Best interest standard expects the surrogate to settle upon a decision which advances patient's best interests and which is what most sensible people would select [46]. Both substituted judgement and best interest standards have problems because of the practical difficulty in obtaining sufficient evidence of patient preferences [39]. In their interpretation of best interests, surrogate decision-makers tend to rely on their own religion and values whereas physicians on the clinical conditions [47].

In the absence of an advance directive – a living will or a power of attorney for health care – the task becomes more arduous than many would think. The number of Australians aged over 65 years is expected to double and the number aged over 85 years is expected to triple by 2040 from 2012 [48]. 227,300 Australians are diagnosed with dementia according to statistics at 2008 [49]. About 45% of the patients with dementia are in nursing homes. The progression of dementia over many years has been categorized as mild, moderate or severe. The clinical picture of Alzheimer's dementia may vary from mild impairment of memory to severe loss of intellectual function, and it is the severity of the dementia that determines the ability to make competent decisions. This means that not everyone with the diagnosis of Alzheimer's disease is severely incapacitated [50] and it must not necessarily be presumed that the elderly with Alzheimer's disease is incapable of providing informed consent [51] indent. The physician must determine whether the patients' preserved cognitive abilities are sufficient for him or her to make satisfactory discernment in relation to the particular point at issue [52]. Even in cases of disputable competency, it is important in patients with Alzheimer's disease to distinguish these areas that maintain competency from those areas in which they do not [51].

(ii) Advanced care directives (ACD) allows individuals ways to exercise their health-care preferences should they become incompetent to make decisions in the future. An important aspect of ACD is the issue of decision-making capacity, that is, the ability to understand the nature and consequences of the decision to be made and to communicate that decision in some way [31]. Another issue is that decision-making should be informed, providing factual information and determining the ability to understand the information provided. The general principles governing informed decision-making for medical treatment or for its refusal also apply to ACD [31].

There are two types of directives: (a) instrumental directives also referred to as living wills or end-of-life instructions and (b) proxy directives also referred to as power of attorney for health care. The living will is a voluntarily created document that declares patient's intention and signed by the patient and witnessed by two adults. The living will not be binding unless the physician caring for the patient's care certifies that death is imminent and death-delaying procedures will only prolong the dying process [53]. The proxy directive, the durable power of attorney for health care, is a document where the patient can designate a surrogate. The surrogate has the legal right and responsibility to make decisions on patient's health care which include initiation and termination of medical procedures and life support systems, among others [53].

Best way to ensure that the patient's desires concerning medical treatment will be respected is a combined document which includes both a living will and power of attorney for health care [54]. An advance directive only comes to effect when the individual is incompetent to make health-care decisions and the competent individual can change or destroy their advanced directive at any time [55].

(iii) With the availability of advance technologies such as mechanical ventilators, kidney dialysis, artificial nutrition and hydration, advance and complex resuscitative techniques among others pose serious personal decisions. Patients and physicians are responsible for medical end-life-decisions.

Cardiopulmonary Resuscitation(CPR) in the Elderly

In the elderly especially those who are disabled and chronically ill, CPR should not be considered as binding as a final endeavour to prolong life whatever the circumstances [56]. Age by itself is not an important determinant of the outcome from CPR but on other factors such as physical and mental function, presence of comorbidities, mechanism of arrest, inactivity and dependency among others [57] (Box 2.1). If ventricular fibrillation/ventricular tachycardia is the presenting rhythm in the elderly survival after out of hospital, cardiac arrest is reasonable [58]. In the nonhospital setting, survival to 1 month after cardiac arrest is less than 5% with rates considerably lower in the elderly with comorbidities [59].

Box 2.1. Indicators of Poor Outcome of CPR in the Elderly

Underlying medical condition
Comorbidities
Mechanism of arrest
Physical disability and mental impairment
Inactivity and dependency
Homebound

Information source: Gordon and Hurowitz [56], Beer [57]

Very often patients and their families have limited understanding of the procedure and overestimate its usefulness [60]. Physicians should not presume their patient's wishes. Physicians can decide which patient is for CPR or who is not after discussion with the family or surrogate decision-maker (Box 2.2) Physicians often do not understand their elderly patients' preferences for resuscitation [43] and do not

routinely discuss CPR with their elderly patients [60]. Physicians should communicate and document the usefulness of CPR in the event of cardiac arrest which should be regularly reviewed especially if there is a change in the patient's clinical status [56, 57]. Elderly patients' wishes regarding resuscitation have been found to be inconsistent [57, 60]. Many want CPR, others would want only comfort care especially the very sick inpatients [61], and still others those with severe congestive heart failure do not want to be resuscitated [62]. In one study less than quarter of the patients had discussed preference for CPR with their physicians, and in those who had not discussed their preferences for resuscitation, 58% were not interested in doing so, and 25% did not want resuscitation [63]. In terminal illness CPR is not indicated [64].

Box 2.2. Physician's Role in CPR in the Elderly

Physicians can decide which patient is suitable for CPR or who is not.

Physicians' decision to resuscitate or not to should be made after discussion with family or surrogate decision-maker.

In the vulnerable elderly patient, physicians should estimate, communicate and document the usefulness of CPR in the event of cardiac arrest.

Should discuss with older patients and recognize their decision-making capacity.

Should where appropriate to share responsibility for decisions.

Resuscitation status should be regularly reviewed more so if there is a change in the patient's clinical status.

Information sources: Gordon and Hurowitz [56]; Beer [57]

Artificial Nutrition and Hydration

One of the most difficult decisions to make by the physician and family members is the decision about artificial nutrition and hydration. Artificial nutrition and hydration constitutes a form of medical care [65]. Severely demented patients need only care to make them comfortable. Although bioethical literature argues that feeding tubes are not mandatory [66, 67], some families will entreat or demand life-sustaining treatment like placement of feeding tubes. Some surrogate decision-makers and family members because of their religious beliefs or other personal reasons, dictate that sustenance must never be withheld [68, 69]. In patients with advanced dementia with difficulty in swallowing or refusal of food or water by mouth, the decision sometimes is made to insert a feeding tube [70], and the use of percutaneous endoscopic

gastrostomy (PEG) tubes has increased in frequency. Many opt for feeding tubes with the belief it will prolong life and prevent aspiration. Feeding tubes do not solve the problem of aspiration pneumonia because often patients inhale their own saliva and medical evidence questions whether feeding tubes improve the quality of life or even prolong life [71]. However, the decision-makers have to justify that continuing treatment will only add to the patient's ordeal and decidedly override whatever gain he or she may derive from continued life. Rarely subcutaneous fluids (hypodermoclysis) may be tried for patients with severe symptomatic thirst [64].

Intercurrent Illnesses

It is ethically appropriate not to treat intercurrent illnesses in this group of patients except with measures required for comfort [72]. The handling of intercurrent illness in this category of patients should be made prospectively before the onset or threat to life [72]. It is not uncommon for family members or surrogate decision-makers to strongly request or demand that the severely demented patient in the aged care facility is hospitalized for treatment of the intercurrent illness, intensive care and resuscitation. Rather than delegate the responsibility to relative and surrogates, the chronically ill patient should be encouraged to determine their treatment, for example, by advanced directives [73] and physician-patient discussions [74]. It is not unusual for spouses to overestimate patients' preferences [43]. It will be more appropriate to have earlier and more complete discussions of a broad range of options for the care of patients at the end of life [75]. It is not an uncommon practice in intensive care units to withhold or withdraw therapy in patients who are unlikely to survive [76]. It has been advocated that a number of factors should be considered before a decision to withhold or withdraw therapy is made, factors such as medical comorbidities, pre- and post-ICU quality of life, families' wishes and predicted mortality [76]. Morphine and other opioids are used only for specific conditions to relieve pain or shortness of breath [64]. General nursing should be strictly adhered to and includes regular attention to general hygiene and mouth care, bowel and bladder care and use of pressure-relieving cushions to prevent skin breakdown [64].

Palliative Care

Palliative care is an active care that improves the quality of life of patients and their families confronted by life-threatening illnesses through control of pain and social, psychological and spiritual problems [15]. Palliative care services should embrace the needs of a wide spectrum of patients, those with multiple chronic symptoms, increasing frailty [77] and other physical, psychosocial vulnerability, and spiritual problems [15, 78, 79]. It should be available in all set-

tings and at any point from diagnosis through to death and to all patients regardless of age, diagnosis and location [80]. The Ontario Coroner stipulated four conditions that has to be satisfied for palliative care interventions to be legal, the care intended solely to relieve suffering, administered in response to suffering or signs of suffering, it must be appropriate with that suffering and it cannot be a deliberative infliction of death, and documentation is essential with progressive increase in the doses [64].

Clinical Relevance

Older patients and their families should be made to understand their preferences in making and acting on the decisive issues.

Typically the ethical issues for the elderly include decision-making, to prepare advance directives and the right to use or refuse life-sustaining technologies [36].

The physician must determine whether the patients' preserved cognitive abilities are sufficient for him or her to make satisfactory discernment in relation to the particular point at issue.

There are two types of directives: (i) instrumental directives also referred to as living wills or end-of-life instructions and (ii) proxy directives also referred to as power of attorney for health care.

Standards of substituted judgement, best interests and advance directives are three existing methods of surrogate decision-making [38].

Medical end-life-decisions may include non-treatment decisions, withholding or withdrawing parenteral hydration and nutrition, relieving pain and the use of drug that might shorten life.

In the elderly especially those who are disabled and chronically ill, CPR should not be considered as binding as a final endeavour to prolong life whatever the circumstances may be [56].

Artificial nutrition and hydration constitutes a form of medical care [65], and severely demented patients need only care to make them comfortable.

Decision-makers have to justify that continuing treatment will only add to the patient's ordeal and decidedly override whatever gain he or she may derive from continued life.

It is ethically appropriate not to treat intercurrent illnesses in this group of patients except with measures required for comfort [72].

The handling of intercurrent illness in this category of patients should be made prospectively before the onset or threat to life [72].

Palliative care services should include a wide spectrum of patients [77].

Multiple Choice Questions (MCQs)

1. In an incapacitated patient, the following are true, *except*:
 - A. An advance directive only comes to effect when the individual is incompetent.
 - B. Patients and physicians are responsible for medical end-of-life decisions.
 - C. It is appropriate not to treat intercurrent illness in severely demented patients.
 - D. In advanced dementia, feeding tubes do solve the problem of aspiration pneumonia.
2. The following are indicators of poor outcome of CPR in the elderly, *except*:
 - A. Mechanism of arrest.
 - B. Physical disability and mental impairment.
 - C. Age is an important determinant.
 - D. Presence of co-morbidities.

Answers to MCQs

1. D
2. C

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Elderly Abuse and Neglect

3

Kujan Nagaratnam and Nages Nagaratnam

Historical Perspective

Elderly abuse is known to occur for more than a thousand years. The ancient Romans and Greeks and conditions in the mediaeval period recorded that old age was gloomy, and intergenerational support was unpredictable and was severely influenced by economic conditions [1]. Hence in mediaeval times, the common advice to older persons was not to pass their assets to their children too early to avoid abuse [1]. The lives of England's elderly did not improve even after the development of the Poor Laws and workhouses [1]. The first record of elderly abuse was made by British scientists in 1975 who referred to 'granny battering' in their journals [2]. In the United States the National Elder Abuse Incidence Study in 1996 revealed that over half a million Americans over the age of 60 years were victims of elderly abuse [2].

General Considerations

Elderly abuse has been defined as acts directed towards the elderly that results in physical, psychological, sexual abuse and financial exploitation [3] or acts of omissions such as neglect. Elder abuse is a widespread problem [4], and the elderly are particularly prone to abuse and is increasing with the growing elderly population [5]. As many as 2.5 million older people in United States are abused each year [6], and approximately 1 to 2 million Americans aged 65 or older have been abused or neglected [7]. In a review of medical records of veterans, the prevalence of elder abuse/neglect was higher in the 80 years and older and in Caucasian and

African American veterans [8]. It frequently goes unrecognised, and there is a lack of awareness of the problem, and even when detected the management can be difficult. A research study in the community in the inner London Borough of Tower Hamlets revealed 84% of general practitioners had a case of elder abuse [9]. In another Scandinavian report, 25% of the general practitioners were aware of patients subjected to verified or suspected elder abuse [10]. About 4% of Australian nurses and little more than half of Canadian nurses had knowledge of some form of elder abuse [11]. Although nurses are able to recognise situations of elder abuse, they are reluctant to act, and this has been attributed to the lack of confidence and knowledge [12]. Women are at higher risk of abuse than men [13]. Highest prevalence have been reported from developed countries with Spain having 44.6% and lower estimates from 13.5% to 28.8% from developing countries [14].

It is only a little over a decade that it is recognised, and its significance confirmed as a social, medical and legal problem in Australian communities [15]. It has generally been estimated, both in Australian and overseas studies, that around 3–5% of the people aged 65 years and over suffer from some type of abuse [16, 17]. The overall prevalence estimated in Western Australia is 0.58% [18]. Elder abuse is associated with increased mortality [19].

Risk Factors

One in four vulnerable elders are at risk of abuse and only a small proportion of them are detected [20]. Risk factors associated with vulnerability among older persons include ageing, poor health, impaired cognition [4, 22] and lack of family, financial and community support. Other risk factors include dependency [23], social isolation, substance abuse, faith-based factors [24], alcohol abuse and history of domestic violence [4]. Elder abuse most commonly occurs in

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residential and institutional settings, and those responsible are known to the victim [25] (Box 3.1). The elderly are often abused by the people with whom they live [6]. Abusers are most often family members, and some 90% are committed by a family member [22] including spouses, son, daughter, brother or friend and should be seen in the context of domestic violence. This often extends from psychological neglect to physical violence and causes an enormous burden of suffering. Dependent elders are particularly susceptible to mistreatment [23]. According to Vida et al. [26] in a retrospective review, found that certain situations indicated a higher risk and in their findings included situation of living with non-spouse family, friends or other non-supervised setting. They also recorded widowhood, divorce or separation correlated with abuse. Clinician's reluctance to report victims and their lack of awareness of warning signs are factors for underreporting [27]. Although the reports of elder abuse to official agencies have increased, only 2% of the reported cases are by physicians [28].

Box 3.1. Risk Factors

Ageing, poor health and impaired cognition [4, 22].
Lack of family, financial and community support.
Other risk factors include dependency [23].
Social isolation, substance abuse, faith-based factors [24], alcohol abuse and history of domestic violence [4].
Most commonly occurs in residential and institutional settings [25].

Types of Abuse

Two basic types have been recognised, abuse and neglect. The former is an act of commission with active involvement of the abuser, and the latter, neglect, is used as a general label for acts of omission with only a passive involvement of the abuser [29]. The National Centre on Elder Abuse [7] recognises seven types of abuse, namely, physical, financial, psychological, sexual, social, violation of basic rights and neglect.

Physical abuse

Physical abuse can take various forms such as inflicting pain and injury and includes hitting, slapping, pushing, burning, extreme forms of restraint and sexual assault. It also includes the inappropriate use of restraints or confinement and drugs [30].

Financial abuse

This may include misuse or misappropriation of the elderly person's material, for example, property, money and valuables [31].

Psychological abuse

Psychological abuse has a wide spectrum from verbal insults and humiliation to that of violence, isolation and deprivation [31].

Sexual abuse

Any sexual activity such as involving sex acts, viewing sex acts or disrobing where the elderly person has not given consent or incapable of giving consent is sexual abuse [30].

Violation of basic rights

Older persons have the right to care, participation, independence, dignity and self-fulfilment [32].

Neglect

Neglect includes abandonment and failure to provide adequate food, shelter, clothing and medical or dental care and also prevention of others to provide such care [31]. When a caregiver deliberately or wilfully abdicates his or her duty-bound commitments towards the older persons, it is active neglect [28]. When the caregiver un-wilfully fails to provide [28] due to ignorance concerning accepted caregiver procedures, it is passive neglect.

Identification of Abuse

Awareness of the risk factors and clinical manifestations [27] and a high degree of suspicion will provide early detection of elder mistreatment. Special attention to 'hidden' signals and certain situations may signal high risk [26]. Injury out of proportion to explanation given may signal elder abuse [25, 32]. Avoiding confrontation [33], carer's or relative's defiance of outside intervention, averse to leave older person alone with health professional and increased dependency on the carer of elderly victim or the perpetrator [27] for example, cognitive impairment, stroke; alcoholism, drugs [35], substance abuse [34] mental illness make them more susceptible [23] should raise suspicion of abuse.

Clinical Evidence

1. Physical mistreatment – injuries [36] (bruises, burns, cuts), bed sores, unusual fractures, marks on wrists (restraint), implausible explanation for injuries [33], etc.
2. Psychological mistreatment – sudden changes in behaviour, fear of speaking for oneself or in the presence of caregiver, fear, shame and embarrassment [36]
3. Financial mistreatment – material abuse, changes in will, large withdrawals or closing of bank accounts [35]
4. Health status [21] – alcohol and history of domestic violence [4]
5. Carer behaviour – threatening remarks, aggressive behaviour, attitude of indifference, problems with alcohol and drugs [35]

Screening and Intervention

Screening is the most important of the primary intervention strategies for the detection of elder abuse [37]. This is followed by thorough abuse assessment, and there are several screening tools [38] and techniques available. The Elder Assessment Instrument (EAI) is suitable for all clinical settings [22]. Fulmer et al. [39] composed and validated the EAI, a 41-item screening tool comprising 7 subscales. A detailed history, thorough physical examination, appropriate laboratory tests and radiological assessment are essential [5]. The specific type of abuse and issues of safety and vulnerability are identified [22].

In Australia according to the Aged Care Act 1997, mandatory reporting for elder abuse only applies to provide residential aged care of incident of alleged or suspected reportable assaults. The latter refers to any unlawful sexual contact with a resident of an aged care home or unreasonable use of force on a resident of an aged care home [40]. Intervention strategies can take a wide range of services. Specific interventions noted are respite care, advocacy and counselling services [41]. Intervention appropriate for addressing the problems arising from abuse may include one or more of the following actions: (i) Once suspected elder mistreatment should be reported to adult protective services [4, 42], (ii) the need for crisis intervention, (iii) clinical strategies to stop abuse include moving the victim into hospital, nursing home and care facility [8], and (iv) decreasing the stress of caregiving and other family stressors in less acute cases [42]. (Algorithm 3.1).

Efforts to Respond to and Prevent Elder Abuse

These include (i) caregiving support, (ii) psychological support for the abused, (iii) self-help groups, (iv) mandatory reporting of abuse to authority, (v) safe houses and emergency shelter and (vi) help lines to provide information and referral [43].

Clinical Relevance

Risk factors associated with vulnerability among older persons include impaired cognition, poor health and lack of family, financial and community support [4, 22].

Abusers are most often family members [22].

Abuse can be physical, financial, psychological, sexual, social or neglect [7].

The primary care physician is in a unique position to detect abuse for he has a long-standing relationship with the patient and knowledge of present and past medical problems.

Elder abuse is often difficult to detect without obvious signs of physical injury.

Physicians and other professionals should have the knowledge, awareness as well as a high index of suspicion of abuse and increased diagnostic vigilance.

Physicians and other professionals should have knowledge of the various forms and indicators of abuse.

Screening is the most important of the primary intervention strategies for the detection of elder abuse [38] followed by thorough abuse assessment.

Intervention strategies involve a wide range of services.

Short Answer Questions(SAQs)

1. List five types of elderly abuse.

Answers to SAQ

1. Physical, financial, sexual, neglect and psychological