Geriatric syndromes

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Abstract. Geriatric syndromes are difficult to understand due to the complexity of the multiple factors and the synergistic effects of the various risk factors. These situations are called syndromes to emphasize that the combined manifestations are related to a large number of factors. Geriatric syndromes such as frailty, delirium, urinary incontinence, dizziness, falls, sleep problems, malnutrition, pain, self-neglect are multifactorial, and associated with substantial morbidity and poor outcomes in clinical practice. They are highly prevalent in older adults, especially frail older people. An old patient should have received the correct diagnosis and treatment and should have been assessed regularly and thoroughly for improving their quality of life and functional capacity. The problems emerging with aging should be dealt with as a whole and the comprehensive geriatric evaluation should be used when approaching the elderly. An interdisciplinary approach gives the chance to evaluate the elderly not only in medical terms but also in psychosocial and functional terms as well.

Keywords: ageing; Turkey; geriatric syndromes; frailty; falls

Introduction

Maintaining wellbeing and quality of life in an ageing population is often accompanied by significant social and economic difficulties. Hence the growing need to create new policies and strategies aimed at increasing the level of welfare, especially considering that; there is a very significant difference in terms of life expectancy at birth between developed and developing nations in the current century (1). Although such societal modification was until recently viewed as mainly involving only the most developed countries, it has now started involving many developing countries as well (2).

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Ageing is characterized by the progressive accumulation of damage at the molecular level caused by environmental and metabolically generated free radicals, by spontaneous errors in biochemical reactions, and by nutritional components (3). Certain changes such as, gradual decline in glomerular filtration rate, gradual decline in hepatic oxidative metabolism, increase in proportion of body fat, reduction in muscle mass generally occur in the human body in conjunction with the ageing process (4). During the process of ageing, a person becomes unprotected against diseases and injuries due to cellular and non-cellular changes such as a decrease in the reserve capacity of organs and systems, a decrease in homeostatic control mechanisms, examples of which include thermoregulation system defects and decreased baroreceptor sensitivity, a decrease in the ability to adapt to environmental factors, and a decrease in the capacity to respond to stress (5, 6). It should be taken into consideration that, the clinically important consequences of geriatric patients due to diminished physiological reserve are; disease presentation in older persons are often atypical, usually there is the context of contributing comorbid conditions, the compensatory mechanism is weakened, recover from illness is slow, certain preventive measures are beneficial and the weekend reserve puts older persons at greater risk for iatrogenic injury (7).

When diseases are prevalent and quality of life is poor, disability issues arise. The number of disabled older persons is increasing not only as a function of population ageing but also because of the increased use medical technology. The concept of disability is very dynamic and involves different types of disabilities. The term 'iceberg of disability' well illustrates the magnitude of the problems involved. Disability can also fluctuate over time, "once disabled" is not the same as 'always disabled'. Activities of daily living have become one of the important indicator of disability (8). It was shown by Gokce Kutsal and colleagues that basic activities of daily living and instrumental activities of daily living scores of older people aged 85 and over were lower. Due to increase in alterations of musculoskeletal system, degenerative joint diseases, osteoarthritis, osteoporosis, chronic diseases, visual disorders and the use of multi-drug in old age compared to other age groups, restrictions in activities of older persons were seen more (9).

In terms of non-communicable diseases/chronic diseases, current pattern in Turkey in older ages is very similar with the other transition countries. Due to the National Burden of Diseases Report both communicable and non-communicable disease increase as the population ages, while injury rates decline after 60-69 years of age. The fact that increased disability in older ages may limit their movability and decrease the risk of injury as they do not go outside, etc. and this may probably decrease injury rates (10). Non-communicable diseases which contribute to disease burden among aged population are cardiovascular diseases, diabetes mellitus, falls, osteoporosis, pain, stroke, cancer, dementia, depression, visual and hearing deficits, polypharmacy, disability, etc. are among major diseases in the older population. Besides, ageism, abuse, and such social deficits in the changing population can be among prior issues (11, 12).

Among social, economic, cultural, demographical determinants, gender plays crucial role in ageing process and many differences in the health/disease patterns of two sexes occur. Women live longer than men in this century and disease patterns differ according to the

country development status. In developed countries; heart disease and stroke, cancer-lung and breast, diabetes and nutritional problems-anaemia/obesity, chronic disabling conditions-arthritis/osteoporosis, multiple conditions, minor conditions, sensory impairment (hearing loss), mental illness-depression/dementia are prevalent. In developing countries, heart disease and stroke, cancer–cervical, communicable disease-tuberculosis/pneumonia, diabetes and nutritional problems-anaemia/obesity, chronic disabling conditions-arthritis/osteoporosis, multiple conditions, minor conditions, sensory impairment (poor vision caused by cataracts), mental illness - depression/dementia are more frequent. Recommendations of wellbeing with gender perspective basically are; national political measures should be developed and applied. These should influence the individual, familial and social responsibilities, and the participation of women in working life and decision mechanisms should be supported (13).

Geriatric syndromes

These situations are called syndromes to emphasize that the combined manifestations are related to a large number of factors. Geriatric syndromes are difficult to understand due to the complexity of the multiple factors and the synergistic effects of the various risk factors. In recent years, clinicians and researchers have shown increasing interest in these syndromes. Geriatric syndromes such as frailty, delirium, urinary incontinence, dizziness, falls, sleep problems, malnutrition, pain, self-neglect are multifactorial, and associated with substantial morbidity and poor outcomes in clinical practice. They are highly prevalent in older adults, especially frail older people. Nevertheless, the concept of central geriatric syndrome has remained poorly defined (14).

Incontinence

Urinary incontinence (UI) is a component of geriatric syndrome and increases treatment and care costs. It needs to be recognized and treated. This condition also has significant predictive value for functional limitation in older persons. The rate above the age of 80 was found to be 19.1 (mostly urge and functional incontinence). Frailty is more common in UI patients (60.7 per cent vs. 32.3 per cent, $p<0.001$). UI is also associated with poor physical function, poor cognitive function, higher incidence of depressive symptoms, poor nutritional support, polypharmacy, and a high stool incontinence rate. Risk factors for UI are older age (generally >65 years), impaired function, mobility or cognition, high BMI, dementia, and the use of physical restraints (15). To determine the prevalence of UI among older women, risk factors, and the effect on activities of daily living (ADLs), a study was conducted in family health centres located in a city in eastern Turkey. The study population consisted of 1094 women age 65 and older chosen with a simple random sampling method. The inclusion criteria were 65 years and older, female, and not diagnosed with mental or emotional diseases or conditions that obstruct communication. Data were collected in face-to-face interviews with the Questionnaire and Daily Life Activities Data Form created by the researchers based on the Roper, Logan, and Tierney model. The prevalence of UI in women age 65 and older was 51.6 per cent, and the most common type was urge incontinence. The number of births, number of abortions, age at last birth, and home births affected the development of UI. In addition, body mass index, constipation, urinary tract infection, cough, hormone replacement therapy,

genital prolapse, cystocele, urogenital surgery, nocturia, and daily urine output were determined to be risk factors. Among the ADLs, 13.7 per cent with UI reported that they had fallen when getting up from the toilet, 34.3 per cent had experienced a sense of shame, 45.8 per cent avoided coughing, and 46.5 per cent restricted fluid intake. Prevalence of UI in women age 65 and older was high, and the most common was urge incontinence (16).

Many older women are hesitated to initiate discussions about urinary symptoms and their UI. To determine the prevalence of occult UI in outpatient older women and to evaluate its association with other geriatric conditions, 100 female patients 65 years and older were assessed at the geriatric outpatient clinic. The validated form of the Turkish version of the International Consultation on Incontinence Questionnaire-Short Form was used to evaluate UI and quality of life. Comprehensive geriatric assessment including activities of daily living, instrumental activities of daily living, mini mental state examination and geriatrics depression scale was performed. The number of falls, comorbid conditions and number of medications were noted. The association between UI and geriatric domains were evaluated with logistic regression analysis. A total of 100 patients were evaluated, 64 of them included in the study. The median age of patients was 72.5 and the rate of UI was found 40.6 per cent. The association between UI and quality of life, performance status and comorbidity was found statistically significant. Half of the patients with UI believe that it is part of normal ageing and no definite treatment is available. The researchers found that, occult UI is a significant problem in older women that inversely affecting the quality of life. The study suggests that awareness and education regarding incontinence should be increased among older patients and screening of UI is an important part of the geriatric assessment. The evaluation and management of functional status and comorbid conditions should be the initial step during incontinence management in older patients (17).

Sleep disorders

Common causes of sleep disorders (SD) may include periodic limb movements, restless legs syndrome, sleep-related breathing disorders such as apnoea, illness, pain, nocturia, dementia and alcoholism. Depression is the most significant cause of insomnia. The prevalence of SD is influenced by environmental factors. A study aiming to investigate the prevalence of SD and its sociodemographic and clinical correlates in a general population-based survey in Turkey was conducted. This population-based study included 4758 subjects among 5021 who participated in the Turkish Adult Population Epidemiology of Sleep Disorders study. Questionnaire items evaluating insomnia were adapted from the International Classification of Sleep Disorders II and the DSM-IV-TR. Subjects with restless legs syndrome were excluded. Insomnia was found to be associated with older age, lower income level, time spent watching television, tea consumption in the evening and smoking status. In respect to other medical disorders, SD was significantly associated with the presence of hypertension, diabetes and heart diseases after the adjustment for relevant risk factors for each disease, across all age and sex groups. SD was found to be a major health problem in our population, affecting subjects in the working age group and those of lower socioeconomic status. It should especially be screened in patients with chronic diseases. A relatively low proportion of insomnia diagnosed

as a SD suggests that this condition and its clinical correlates are possibly under-recognized (18).

Pressure ulcer

A pressure ulcer (PU) is defined as a localized damage to the skin and underlying soft tissue usually over a bony prominence. It can also be related to a medical or other device and usually occurs as a result of intense and/or prolonged pressure or pressure in combination with shear. Risk assessment is important for prevention. Extrinsic risk factors are: pressure, friction, shear, chemical effects of moisture, urine, and stool. And intrinsic risk factors are: dermal thickness, subcutaneous adiposity, collagen tensile strength, and skin elasticity all decrease with ageing; nutrition and hydration; conditions associated with immobility, impairment of sensation and reduced level of consciousness. PUs are common in nursing homes, hospitals and especially intensive care units worldwide. They create an important public health problem for older persons, especially in developed countries. The prevalence in Europe is 8.3 per cent to 23 per cent (19). Ageing leads to decreased skin elasticity, blood flow, subcutaneous fat tissue and cell regeneration rate, increasing the risk of PUs. The addition of immobilization, malnutrition, UI and obesity facilitate development further (20).

Multiple pressure ulcer (PU) risk assessment instruments have been developed and tested, but there is no general consensus on which instrument to use for specific patient populations and care settings. The validity of the Turkish version of the Risk Assessment Pressure Sore (RAPS) instrument for use in intensive care unit (ICU) patients was studied using a convenience sample of 122 patients consecutively admitted to an ICU unit in Turkey. The incidence of PUs in this population was 23 per cent. The majority of ulcers that developed were Stage I. Internal consistency of the RAPS tool was adequate. In this population of ICU patients, the RAPS scale was found to have acceptable reliability and poor validity (21). Another study was performed to determine the impact of an educational intervention on the incidence of stage II PUs in adult patients in ICUs in a Turkish medical centre. This was a prospective study of patients admitted to ICUs. Subjects were assessed using the Braden Scale for Predicting Pressure Sore Risk to determine the risk for developing a PU. Educational intervention was employed: Intervention included education of ICU nurses about PU prevention and risk assessment; and following the educational intervention and implementation of the PU prevention protocol in all ICUs, data were collected for study period II. The sample comprised 186 patients admitted to critical care units of a Turkish medical centre. Ninety-three subjects participated in a pre-intervention comparison group, and 93 subjects participated in an intervention group. Data were collected using a demographic and clinical data form, a nursing intervention checklist, and the Braden Scale for Predicting Pressure Sore Risk. Stage II PUs were observed in a total of 50 patients for the overall sample. The most common site was the sacrococcygeal area. The authors concluded that education regarding preventive care can be effective in reducing the incidence of PUs in the ICU setting (22).

Frailty

The most common definition of frailty is an age-associated, biological syndrome characterized by decreased biological reserves, due to dysregulation of several physiological systems, which puts an individual at risk when facing minor stressors, and is associated with poor outcomes (i.e., disability, death, and hospitalization) (23). Common signs and symptoms are unintentional weight loss, muscle weakness, fatigue, slow walking speed, and progressive functional decline. Frail older adults are among the most challenging for medical management (6).

Certain authors only define frailty with physical parameters as a decrease in muscle power and endurance, physical activity and balance. Characteristics include decreased endurance, balance and motility, slower performance and less activity, together with wasting and possibly decreased cognitive function. Frailty can be recognized easily by the clinicians with its high number of clinical manifestations (24). In community-dwelling older adults the prevalence of frailty varies from 4.0 per cent to 59.1 per cent (25). A study was conducted in Turkey to present the characteristics, prevalence, and related factors of frailty in older adults in our country, including 1126 individuals over 65 years of age from 13 centres. Frailty was evaluated using the *Fried Frailty Criteria*, and patients were grouped as frail, pre-frail, and non-frail. Nutritional status was assessed with Mini Nutritional Test, psychological status with the Center for Epidemiological Studies Depression Scale-CES-D, and additional diseases with the *Charlson Comorbidity index*. Approximately 66.5 per cent of the participants were between 65 and 74 years of age and 65.7 per cent were women. Some 39.2 and 43.3 per cent of the participants were rated as frail and pre-frail, respectively. The multinomial logistic regression analysis was used to determine the factors associated with frailty. It was observed that age, female gender, low education level, being a housewife, living with the family, being sedentary, presence of an additional disease, using 4 or more drugs/day, avoiding to go outside, at least one visit to any emergency department within the past year, hospitalization within the past year, non-functional ambulation, and malnutrition increased the risk of frailty ($p<0.05$). Establishing the factors associated with frailty is highly important for both clinical practice and national economy. This is the first study on this subject in our country and will provide guidance in determining treatment strategies (26).

Another study was designed as a prospective, cross-sectional study, and was conducted in a rural area of Kars Province in Turkey. A total of 168 older adults (≥65 years old) from 12 central villages were included in the study. The *Fried Frailty Criteria* was used to assess the frailty of the participants. In addition to frailty, the physical, social, and mental status of older adults was also examined. The prevalence of frailty in this rural area of Turkey was 7.1 per cent. The study group ranged in age from 65 to 96 years and 53.6 per cent were female. There was a statistically significant relationship between frailty and older age, lower education level, lower economic level, co-morbidities, polypharmacy, diabetes, chronic obstructive pulmonary disease, gastric disease, arthritis, generalized pain, benign prostatic hyperplasia, urinary incontinence, auditory impairment, impaired oral care, caregiver burden, impaired cognitive function, depression, or a lack of social support (social isolation). The author believed that this study will contribute considerably to understanding the health status and

needs of older adults in Turkey and the health problems of this population as well as to planning the development of public health and geriatric services based on regional needs (27).

Sarcopenia is age related loss of muscle mass and strength seen together with decreased myosin count and muscle cell protein content. Ageing leads to decreased contractile rates of muscle fibres, myosin concentration and force per unit area. Sarcopenic muscle weakness and loss of function are major components of frailty in geriatric syndrome (28). Therapeutic interventions include nutritional supplementation, exercise training, comprehensive geriatric assessment and management by consultation services, and hormonal or anti-inflammatory interventions (6).

Delirium

Delirium is a clinical diagnosis that is usually unrecognized and easily overlooked. And can be defined as an acute decline in attention and cognition, is a common, life-threatening and potentially preventable clinical syndrome among persons who are 65 years of age or older. The development of delirium often initiates a cascade of events culminating in the loss of independence, an increased risk of morbidity and mortality, and increased health care costs (29). Recognition requires a brief cognitive screening and astute clinical observation. Key diagnostic characteristics are acute onset and fluctuating symptoms, and impaired cognition and consciousness level. Supportive clinical characteristics can be listed as disruption of the sleep-wake cycle, sensory disturbances (hallucinations or illusions), delusions, psychomotor disturbances (hypo-or hyper-activity), inappropriate behaviour and emotional instability (30).

A study was conducted aiming to determine the prevalence of delirium in older patients hospitalized at a university hospital, and to determine the recognition rate by hospital staff during hospitalization. The study included 108 consecutive patients aged ≥ 65 years that were hospitalized in the medical and surgical inpatient departments at Başkent University Hospital, Ankara, Turkey. All the patients were evaluated using the Mini Mental State Examination (MMSE) upon admission and Confusion Assessment Method (CAM) on a daily basis during hospitalization. Written documents and consultation requests from psychiatry and/or neurology departments were reviewed for recognition of delirium by hospital staff. Among the 108 patients in the study, delirium was noted in 18 (16.7 per cent) during their hospital stay. Consultation from psychiatry or neurology departments was requested for 5 of the 18 patients, only 1 with a delirium diagnosis, indicating that 17 of the cases (94.4 per cent) were not recognized by their primary physicians. Delirium non-recognition rate in hospitalized older patients was very high and they think that hospital staff must be trained to recognize the symptoms of delirium and identify high-risk patients (31).

Altered mental status (AMS) is a challenging diagnosis in older patients and has a large range of etiologies. A study was performed to investigate the nature of such etiologies for physicians to be better aware of AMS backgrounds and hence improve outcomes and mortality rates. This prospective observational study was conducted at 4 emergency departments. Patients 65 years and older who presented to the emergency department with acute AMS (≤1 week), with symptoms ranging from comas and combativeness, were eligible for inclusion in this study.

The outcomes, etiologies, Richmond Agitation and Sedation Scale scores, and the presence of delirium were recorded. Among 822 older patients with AMS, infection and neurological diseases were the most common etiologies. The hospital admission and mortality rates were 73.7 per cent and 24.7 per cent, respectively. The mortality rate rose if AMS persisted for more than 3 days. Delirium was observed in 55.7 per cent of the patients; these individuals had higher durations of AMS than those without delirium. Notably, delirium was observed in more than two-thirds of neurological patients. The results of this study showed that, most common causes of AMS were infection and neurological diseases. Delirium was associated with AMS in nearly half the patients. Moreover, the rates of hospitalization and mortality remained high (32). Prevention and early diagnosis are essential. Primary prevention of delirium with non-pharmacologic multi-component approaches have gained widespread acceptance as the most effective strategy. These include reduction of psychoactive drugs, early mobilization, therapeutic activities, ensuring high-quality sleep and supplying vision and hearing aids.

Polypharmacy

Polypharmacy (PP) increases the risk of geriatric syndrome and negatively affects the morbidity/ mortality rates. Some sources even include PP in the geriatric syndrome group. Patients using multiple drugs had low compliance with the treatment and high mortality rates and consultancy provided by a pharmacist over the phone increased compliance with the treatment and lowered mortality rate. Inadequate or incomplete information increases the risks of drug interactions and side effects. Adverse drug reactions associated with inappropriate use of drugs lead to many problems. PP appears as one of the significant reasons for hospitalization (33). International research shows that PP is common in older adults with the highest number of drugs taken by those residing in nursing homes. Nearly 50 per cent of older adults take one or more medications that are not medically necessary. It has clearly been established that there is a strong relationship between PP and negative clinical consequences. Moreover, well designed inter-professional (often incuding clinical pharmacist) intervention studies that focus on enrolling high risk older patients with PP have shown that they can be effective in improving the overall quality of prescribing with mixed results on distal health outcomes (34). PP in older persons also complicates therapy, increases cost, and is a challenge for healthcare agencies. The incidence of drug interactions and adverse reactions increases exponentially with the increase in polypharmacy. PP was correlated with various factors including age, sex, marital status, number of children, status of retirement, and presence of chronic medical conditions but not educational status in a study evaluating 1430 older persons in different geographical regions of Turkey (35). The general practitioners are frequently involved in the care of older patients with painful problems. The GPs have observed that NSAIDs, antibiotics, vitamins and mineral preparations, cardiovascular system drugs were used by the patients without prescriptions (36).

Not only the PP but safety of drug use, which is defined by the maximum efficacy, safety of drug and its convenience for the patient and cost-benefit relation, is significant for all age groups as well. However, this is much more so for geriatrics. Therefore, the physicians and the other health professionals working in this chain should pay great attention for safe use of

drugs in the older group. Studies are needed to find the most effective way to reduce PP, especially in the frail elder population, and to quantify the real advantages of simplifying their drug regimens in terms of improved quality of life (37). Another issue is herbal medicine and a study was conducted to evaluate the prevalence and documentation of the use of herbal remedies by individuals aged ≥ 65 years and to evaluate possible adverse reactions and herb-drug interactions. Data were collected from 1418 participants (age range 65-95 years) via interview-based questionnaires. The prevalence of herbal use among older adults was 30 per cent. As much as 64 per cent used more than one prescription medication, and polypharmacy was reported by 47.5 per cent of participants. Some participants used herbal products that are known to interfere with conventional drugs used to treat chronic diseases, such as cardiac glycosides, diuretics, anticoagulants, antidiabetics, anticonvulsants, and monoamine oxidase inhibitors. The authors concluded that, to ensure good patient care, it is important that healthcare professionals are aware of possible health complications associated with the concomitant use of herbs and medications (38).

Malnutrition

An important health problem which increases with ageing is malnutrition. There are many factors associated with malnutrition in older persons, including demographic, physical and psychosocial factors, eating and oral problems, low functional capacity, living alone, dementia and depression. It causes not only deterioration in the quality of life and functional capacity but also increases the infection risk, length of hospital stay and poor healing. Moreover, it is a predictor of morbidity and mortality. Therefore, it is important to identify older individuals nutritionally at-risk or who are malnourished in early stages of ageing (39, 40). Age related decline in food intake is associated with various physiological, psychological and social factors. Poor nutritional status is found in 44 per cent of the patients and malnutrition rate is higher among those with subsequent hospitalization. Patients with poor nutritional status have lower blood haemoglobin, serum total protein and albumin, and revealed more chronic diseases and geriatric syndromes. Patients with depression, fecal incontinence, decreased cognitive function and functional dependence show poor nutritional status. Malnutrition risk show positive correlation with the number of existing geriatric syndromes. Depression, dementia, functional dependence and multiple co-morbidities are associated with poor nutritional status (41). Nutritional assessment is important to identify and treat patients at risk, the Malnutrition Universal Screening Tool being commonly used in clinical practice. The Mini Assessment and Malnutrition Risk Scale can also be used. Management requires a holistic approach, and underlying causes such as chronic illness, depression, medication and social isolation must be treated. Patients with physical or cognitive impairment require special care and attention. Oral supplements or enteral feeding should be considered in patients at high risk or in patients unable to meet daily requirements (42).

Pain

The prevalence of pain increases with ageing (43, 44). Epidemiologic studies have reported especially increased chronic pain prevalence in older persons with a rate of 50-75 per cent. Older persons are an important risk group regarding pain due to chronic degenerative

changes and multiple comorbidities. Common pain syndromes should be diagnosed correctly in this group. Poor pain control causes functional limitation, immobility/loss of independence, depression and decreased life quality. The early and efficient diagnosis and treatment of pain are therefore extremely important. Pain should be accepted as a geriatric syndrome. Chronic/untreated pain causes functional limitation, depression and increased dependence among other problems and these can then make pain treatment more difficult. The result is multi-system interaction and a vicious cycle of poor outcome (45). The effects of demographic and clinical determinants on pain and the possible risk factors that disrupt quality of life were evaluated. The design of this research was a prospective study performed in tertiary care hospital-based physical medicine and rehabilitation departments. A comprehensive geriatric pain assessment (Geriatric Pain Scale, GPS) and health-related quality of life (HR-QOL) assessment (Nottingham Health Profile, NHP) were performed. Of the 275 patients, two hundred seventy-four patients (99.7 per cent) had various levels of pain. Analyses showed that for the total GPS score, female gender, lower education, and economic status were significant determinants of higher levels of pain and the NHP, GPS, Self-Reported Disability Index, and Geriatric Depression Scale were significant determinants of poorer HR-QOL. There was a high prevalence of pain and being female, having low income, having low social support, having a higher rate of disability with related multiple comorbidities, and depression as related factors of HR-QOL. Strengthening these negative predictors of HR-QOL might enhance the efficiency of pain therapies in this population (46).

The increased prevalence of pain in later life may be associated with age related factors, physiological changes and disorders in bones and muscles or comorbid diseases and conditions, such as diabetes, cancer, stroke, and surgery (47, 48). The most common musculoskeletal disorders in the aged group are degenerative, rheumatologic, and neurologic diseases (i.e. neurological and musculoskeletal diseases). These lead to pain, decreased range of joints motion and muscular strength, as well as functional disability (49). Chronic pain can be nociceptive, neuropathic, or mixed (50). The conditions, which cause neuropathic pain, are more common in older people (51). Neuropathic pain in the older population is important because it restricts functional activities, decreases activities of daily living, and can eventually lead to disability (52, 53). Ability to cope with pain in older patients requires identifying the types and causes of pain and its prevalence. In a cross-sectional multi-centre study in Turkey, we aimed to determining the prevalence of neuropathic pain in older patients and the relationship of neuropathic pain with socio-demographic and clinical factors. Thirteen centres in different regions of Turkey. The study included 1163 individuals over age 65. Physicians conducted face-to-face interviews to obtain clinical and socio-demographic data and The Douleur Neuropathic 4 (DN4) and The Self-completed Leeds Assessment of Neuropathic Symptoms and Signs (S-LANSS) pain scales were used to assess neuropathic pain. Patients who scored ≥4 or ≥12 on the DN4 and S-LANSS scales, respectively, were determined to be experiencing neuropathic pain. Neuropathic pain was found in 52.5 per cent of the patients in this study. Approximately 67.5 per cent of the patients with neuropathic pain were in the 65-74 age group, and 72.1 per cent were females. Of the patients who were experiencing neuropathic pain, 48.4 per cent were graduates of primary school, 91.6 per cent engaged in very little or no physical activity, and 56.7 per cent were taking four or more medications. Neuropathic pain prevalence was 52.5 per cent in older persons aged 65-plus who had

presented with pain complaints. Neuropathic pain was more frequently seen in women, patients with comorbidities, those with poor levels of ambulation, those using walking aids, and those using multiple drugs. Interrogating older persons for neuropathic pain seems important for effective treatment (54).

Osteoporosis

Osteoporotic hip fractures have a profound impact on the physical health and psychosocial wellbeing of older patients. The incidence of hip fractures in Turkey increased markedly. The MEDOS study in 1988/1989 reported that men and women from Turkey had exceptionally low rates of hip fracture. The FRACTURK study estimated to evaluate current and future hip fracture risks and the prevalence of osteoporosis in Turkey. Hip fracture cases in 2009 were identified from interviews of a population-based sample of 26,424 residents aged 50 years or more in 12 different regions of Turkey and in two hospital surveys. Bone mineral density was evaluated by DXA in an age-stratified sample of 1,965 men and women. Hip fracture incidence in the community-based survey was similar to that in the hospital survey. The age-specific incidence in men and women was substantially higher than that reported for 1988/1989. At the age of 50 years, the remaining lifetime probability of a hip fracture was 3.5 per cent in men and 14.6 per cent in women. In 2009, there were approximately 24,000 hip fractures estimated in Turkey, 73 per cent of which were found in women. Assuming no change in the age- and sex-specific incidence, the number of hip fractures was expected to increase to nearly 64,000 in 2035. The prevalence of osteoporosis at the femoral neck was 7.5 per cent and 33.3 per cent in men and women, respectively, aged 50 years or more. The authors concluded that, although Turkey is still among the countries with low hip fracture rates in Europe, the incidence has increased markedly in the last 20 years (55).

In patients with osteoporosis may spread to a wide range of co-morbidities often adversely affecting the treatment of osteoporosis. Physicians and patients primarily focus on systemic co-morbidities and they can easily be able to neglect or underestimate the diagnosis and treatment of osteoporosis which is initially characterized as a clinically silent disease. Patients with one or more co-morbidities should be followed strictly in terms of primary or secondary osteoporosis and detailed risk calculation should be done. Not only the preventive measures, but early diagnosis and effective treatment should be taken account seriously as well. Treatment recommendations for the patients with several co-morbidities must employ strategies taking patient compliance into account (56).

Falls

Falls are a major health problem and often cause serious injuries (especially fracture of proximal femur) which leads longstanding pain, functional impairment, disability and mortality. Incidence of fall is increasing strongly with age and 30 per cent of older persons have at least one fall worldwide (57). The cause can be biological, medical, environmental, social or behavioural causes. Simple preventive measures are arranging the house and living environment, less polypharmacy, using Vitamin D supplement, use of support and orthoses can be used to avoid the related immobility, morbidity, and becoming dependent.

Determining the factors to fall risk seems essential especially for physicians for appropriate treatment and rehabilitation. Previously numerous factors were reported as associated with fall risk among older persons. Increased age, muscle weakness, balance and gait problems, poor vision, cognitive and functional impairment and other comorbidities such as dementia, depression are risk factors for falling in later life (58, 59). Also medication, alcohol use, postural hypotension, fall history, acute or chronic illness, use of assistive devices, frailty / deconditioning, environmental factors and fear of falling are the other factors. Whereas risk factors for serious fall injury are: older age, white race, decreased bone mineral density, decreased body mass index, cognitive impairment. In the literature it has been reported that 33 to 64 per cent of falls took place in the home. But there are studies reporting that falls are frequent outside the home. It may be because of the environment in our country being not suitable for older people. Yeşilbakan and Karadakovan reported that 42.6 per cent of older people fell while walking down the street, 36.2 per cent fell because of dizziness, and 34.0 per cent fell because they tripped on something and it was observed that older individuals fell more in the afternoon. They also reported that 31.8 per cent of older people who fell sustained fractures (60). Akdeniz et al. indicated that fractures and serious soft tissue injuries were observed in 10 to 25 per cent of older people who fell (61). To investigate the association between fall and demographic, clinical and psychosocial characteristics amongst older people a study was conducted in 11 different physical medicine and rehabilitation clinics in Turkey. Two hundred seventy-five patients who were 65 or older were included into this study. The history of fall in the last year were obtained. The demographical and clinical properties, cognitive function, quality of life, disability and level of depression were noted. Sixty-five patients had fall experience in the last year. Falls are common in patients with weakness, fatigue, dizziness, swelling in legs and subjects with appetite loss. The fallers had lower functional status than those who did not fall. Fallers had more depressive symptoms than their peers. Quality of life, especially physical activity, energy level and emotional reactions subgroups were different. Disability and mental status were similar in groups. The authors stated that; falls are common in older patients and a variety of factors affect the situation. Musculoskeletal problems, functional and social status might be some of the contributors (62).

Comprehensive evaluation

An old patient should have received the correct diagnosis and treatment and should have been assessed regularly and thoroughly for improving their quality of life and functional capacity. It is agreed that the problems emerging with ageing should be dealt with as a whole and the comprehensive geriatric evaluation should be used when approaching older persons. An interdisciplinary approach gives the chance to evaluate older persons not only in medical terms but also in psychosocial and functional terms as well (1). Comprehensive geriatric assessments would be useful to identify these geriatric syndromes, especially for those older than 85. It is recommended to use geriatric assessment tools such as; Mini-Mental State Examination, functional and instrumental (higher level functional) activities of daily living, gait and balance, visual acuity, depression, delirium, fall risk and skin breakdown. It is clearly stated that, the future care of older persons rests strongly on the ability of primary physicians and advanced care nurses to recognize geriatric syndromes early and initiate a care system that will prevent disability. It is hoped that utilization of these rapid screening approaches for

early recognition of geriatric syndromes will reduce the development of disability in older persons (63).

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