Case 1.1 Recipe for Successful Aging

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Mrs. R presents to the primary-care practice for an annual examination. She is new to the practice and has several health questions she would like to discuss regarding aging as she is now a "senior" and needs to stay healthy to care for her 88-year-old mother with early stage Alzheimer disease. Mrs. R is 65 years old and describes her overall health as good. She was diagnosed with hypertension and hypercholesterolemia approximately 15 years ago and has been seeing her former primary physician every 6 months for checkups. Mrs. R also has osteoarthritis of the right knee with occasional pain and stiffness. She is concerned that she may need to have knee replacement surgery in the future. Mrs. R recently relocated to a new apartment to accommodate being the primary caregiver for her mother. Mrs. R is not sure how to manage her mother's routine health care.

Mrs. R has a past medical history of hypertension, hypercholesterolemia, and osteoarthritis of the right knee. Her past surgical history includes a tonsillectomy at age 7 and cholecystectomy at age 41. Her medications are: HCTZ, 12.5 mg daily; atorvastatin, 20 mg daily; and Tylenol Arthritis, 2 tablets as needed for knee pain with an average of once a day administration and twice a day "on bad days". She has a mammogram annually. Her last Pap smear was 2 years ago. She had a colonoscopy at age 55. Both tests revealed no abnormal findings. TB: unknown. She has no known allergies (NKA). Her functional status reveals that she is independent in all activities of daily living and instrumental activities of daily living. She drives her own automobile. Her father died at age 63 of myocardial infarction (MI). Her mother is

alive, age 88, with a history of mild stage Alzheimer disease, hypercholesterolemia, and osteoarthritis of both knees. Mrs. R is not sure of her paternal and maternal grandparents' health history. Mrs. R has 2 brothers ages 69 and 67 living in Puerto Rico with unknown health history. She has 2 younger brothers living in the United States. Her 60-year-old brother has a health history of MI at age 48, hypertension, and diabetes mellitus. Her 57-year-old brother has hypercholesterolemia. Mrs. R also has 2 sisters living in the United States. One sister, age 62, has diabetes mellitus, hypertension, and a history of breast cancer. Her 55-year-old sister is alive and in good health. Mrs. R also has 3 children: 2 sons, ages 42 and 40, are both in good health; and her daughter, age 37, is also in good health. She has 8 grandchildren.

Mrs. R is a recently retired home health aide. She has a high school diploma and has received certification as a home health aide. She is divorced and currently residing in a 2-bedroom apartment of a 2-family house with her 88-year-old mother. Mrs. R is the primary caregiver for her mother. One sister lives locally and works full-time. This sister lives with her family on the first floor of the 2-family house. The sister sporadically assists with primary caregiving of mother when she is not working. Mrs. R's other siblings live within 20 miles but only visit during the holidays. Mrs. R's children all live locally, work full-time, and have children. Mrs. R provides child care for her daughter's 7- and 10-year-olds after school 3 days per week. Her son's family comes to dinner every Sunday. Mrs. R has a boyfriend whom she sees approximately 3 times per week. The couple dines at a local restaurant weekly without her mother.

Mrs. R states that her finances are adequate and include Social Security and a "small" amount of savings. She also does alterations occasionally for a local tailor for extra income. Mrs. R has a 20 pack year history of smoking. She has not smoked for 25 years. Mrs. R denies a history of alcohol abuse or use of recreational drugs. She has approximately 1 glass of wine per day with dinner. Mrs. R is sexually active. She denies dyspareunia or sexual problems with herself or her partner. She has no history of sexually transmitted diseases.

Hobbies: Mrs. R enjoys cooking and has a weekly card game with her girlfriends. Most of her day is spent shopping, doing housework, babysitting, and overseeing the care of her mother.

Mrs. R currently denies any pain, discomfort, or constitutional symptoms. She does state that she has intermittent right knee pain associated with arthritis. The pain and stiffness occur on cold or rainy days and with extended walking or sitting. The pain is described as a "bad ache," 7 on a scale of 1–10; and its duration is 30 minutes to 1 hour. Stretching, heat, and Tylenol Arthritis are all effective. She averages 2 Tylenol Arthritis tablets per day and twice a day on "bad days". She denies headache. Mrs. R states that she has noticed some difficulty

with blurred vision at night when driving and requires reading glasses for any "close work". She denies any hearing loss or tinnitus. She denies nasal congestion, drainage, epistaxis, sore throat, or a cough. On a rare occasion, she has experienced dyspnea on exertion without chest pain or palpitations, which is relieved with rest. Mrs. R also denies any abdominal pain, nausea, vomiting, constipation, or diarrhea. On occasion, she has experienced indigestion after a large meal, which is relieved with Tums. She complains of rare stress incontinence with laughing or sneezing, but no urge incontinence, dysuria, hematuria, or retention difficulties. She wakes to void once per night. Mrs. R denies any vaginal drainage. She denies any joint pain except knee pain. She denies muscle weakness, paresthesia, edema, or difficulty with balance or gait. Mrs. R denies episodes of lightheadedness, vertigo, syncope, tremors, or falls in the past 6 months. She describes her mood as good, without depressive symptoms, anxiety, or mood swings. She also describes her memory as good with rare "forgetfulness" of names or misplacing things but "it always comes to me in a couple of minutes".

OBJECTIVE

Mrs. R is a 65-year-old female in no acute distress. Her BP is 126/78; her pulse is 78; and her respirations are 12. She is 64 inches tall and weighs 125 lb. Her head is normocephalic. PERRLA. External ear canals are without drainage, erythema, or swelling. Her TMs are intact. Her neck is supple. There is no evidence of lymphadenopathy, thyroidomegaly, or carotid bruits. Her thorax is symmetrical, and her breath sounds are clear to auscultation. Cardiac examination reveals S1, S2 with no murmurs, gallops, or clicks. Her abdominal examination is benign. Her extremities have no evidence of cyanosis, clubbing, or edema. Her neurological examination is nonfocal, without evidence of rigidity, myoclonus, cogwheeling, or tremors. She has a positive get-up-and-go test, and her Romberg sign is negative.

CRITICAL THINKING

What are the current statistics on life-expectancy trends of the older adult population that will guide recommendations for care for Mrs. R?

How can Mrs. R successfully age without becoming dependent on others for physical support?

What are the current rates of disability in older adults and methods to prevent disability?

What are the most important areas to assess in Mrs. R. in order to help to promote health and prevent disease and complications associated with chronic illness?

What is the plan of treatment for Mrs. R based on her history and physical examination results?

RESOLUTION

What are the current statistics on life-expectancy trends of the older adult population that will guide recommendations for care for Mrs. R?

The growth in the number and proportion of older adults in the United States is increasing at an unprecedented rate. The older adult population is currently 12.8% of the U.S. population; 1 in 8 Americans are greater than 65 years of age. It is estimated that this population will increase to approximately 20% by the year 2030 (U.S. Department of Health and Human Services, 2008). The older adult population comprises a large heterogeneous group of age categories and ethnicity. Older adults like Mrs. R are frequently characterized as young old (65–75 years of age), old old (75–85 years of age), or oldest old (those 85 years of age and greater). The baby boomers (those born between 1946 and 1964) will start turning 65 in 2011, and the number of older people will increase dramatically during the 2010–2030 period. The oldest-old population is the fastest growing segment of the population and is projected to grow rapidly after 2030, when the baby boomers move into this age group. The U.S. Census Bureau projects that the population age 85 and over could grow from 5.3 million in 2006 to nearly 21 million by 2050 (Federal Interagency Forum on Aging-Related Statistics, 2006).

With the expected increase in the number of older adults, there is also an anticipated change in the racial/ethnic composition of this cohort. It is projected that by 2030, more than 1 in 3 older adults will be from 1 of 4 minority groups: African American, Asian/Pacific, Hispanic, and American Indian (Federal Interagency Forum on Aging-Related Statistics, 2010).

Because of the projected increase in the older-adult population, the health and the usage of health care services of this group will be of great concern to public policy. Population information will be needed in order to evaluate their impact on Medicare and Medicaid (Kramarow, Lubitz, Lentzner, & Gorina, 2007). Some states have higher

concentrations of older adults and will need to analyze available resources to accommodate the projected rise of this population. Presently, the majority of older adults reside in 10 states: Florida, Pennsylvania, West Virginia, Iowa, North Dakota, Rhode Island, Maine, South Dakota, Arkansas, and Connecticut (Administration on Aging, 2009). Health care resources, transportation options, availability of caregivers, and health policy will all be affected by the increase in the number of older adults.

Life expectancy: The decline in adult mortality over the past half century has contributed to the steady increase in life expectancy. In 2004, the average life expectancy at birth in the United States was 75.2 and 80.4 for men and women. At age 65, the average male was expected to live another 17.1 years and females another 20 years (Centers for Disease Control and Prevention, 2006). The extended life span of humans is largely due to advances in medical science that have prevented or decreased the occurrence of acute illness. Chronic disease and degenerative illness have replaced acute illness as the leading causes of death for older adults.

How can Mrs. R successfully age without becoming dependent on others for physical support?
Successful aging allows older adults like Mrs. R to maintain autonomy and remain living independently in the community. However, there is a lack of a universal definition or measurement of successful aging. The World Health Organization, the White House Conference on Aging, and the National Institute of Aging have emphasized that successful aging goes beyond avoidance of disease and disability. Rowe and Kahn (1997), whose model was used in the MacArthur Research Network on Successful Aging, defined successful aging as including low probability of disease and disease-related disability, high cognitive and physical functional capacity, and active engagement in life. Other components in the literature identify life satisfaction, presence of illness, longevity, personality, environment, and self-rated health (McReynolds & Rossen, 2004).

Research suggests that good lifestyle choices have an essential role in successful aging. The literature indicates that adequate physical activity, even initiated in later years, contributes to high physical and cognitive functioning and overall health (Aranceta, Perez-Rodrigo, Gondra, & Orduna, 2001; Fillit et al., 2002; Houde & Melillo, 2002; Mattson, Chan, & Duan, 2002; Oguma, Sesso, Paffengarger, & Lee, 2002). Specifically, physical activity increases muscle tone, flexibility, cardiovascular health, positive mood, and cognition. It also prevents falling, which is a significant health issue for older adults.

Nutrition is a powerful and modifiable lifestyle factor that can delay or prevent chronic disease in later life and potentially may add extra

years of health, productivity, and functioning (Shikany & White, 2000). The leading causes of death of older adults in the United States (which include coronary heart disease, cancer, and stroke) are associated with diet. However, older adults like Mrs. R are at risk of undernutrition due to physiological changes related to digestion, metabolism, and nutrients. Many older adults may have poor nutritional intake because of a decrease in sense of taste or an increase in chewing or swallowing difficulties.

Social support contributes to physical and cognitive function and engagement in life (Lange-Collette, 2002). Psychologists believe social support provides a stress buffering effect on health (Cohen, 2004). Stress is thought to activate physiological systems such as the sympathetic nervous system and the hypothalamic-pituitary-adrenal (HPA) cortical axis (Cohen, Kessler, & Gordon, 1995). Prolonged activation of these systems is thought to place an individual at risk for a variety of physical and psychological illnesses. Social support may interrupt the stress–physical decline cycle. Maintaining active social relationships and involvement may provide the necessary emotional support to deter the chronic activation of the sympathetic nervous system and HPA axis. Social support may also promote a sense of fulfilling important social roles, enhance feelings of self-control and competency, and facilitate healthful lifestyle behaviors that prevent chronic illness and disability, such as exercise and healthy nutrition (Krause, Herzog, & Baker, 1992; Mendes de Leon, Glass, & Berkman, 2003).

What are the current rates of disability in older adults and methods to prevent disability?
The World Health Organization (2010) defined disability as an umbrella term, covering impairments, activity limitations, and participation restrictions. Research indicates that older adults have significantly increased prevalence of disability, particularly non-Caucasians; and the suggested contributing factor is the current epidemic of obesity (Seeman, Merkin, Crimmins, & Karlamangia, 2010). Older obese adults are more likely than nonobese cohorts to have certain chronic conditions and report higher levels of disability (Kramarow et al., 2007). Prevention of disability is a significant factor for maintaining independence and successful aging. Maintaining a healthy lifestyle and managing chronic illness are important methods in prevention of disability.

Chronic disease: Chronic illness causes most death among older Americans (Kramarow et al., 2007). Results from the National Health Interview Survey indicated that nearly one-third of older adults in 2004–2005 reported having been diagnosed with some form of health disease, and approximately half reported having been diagnosed with arthritis. An individual's risk for having more than one chronic condition increases with age in 62% of Americans greater than 65 years of

age; 1 in 5 Americans have multiple chronic conditions (Volgeli et al., 2007). The most prevalent conditions for the older adult population include arthritis (57%), hypertension (55%), pulmonary disease (38%), diabetes (17%), cancer (17%), and osteoporosis (16%) (Partnership for Solutions National Program Office, 2004).

To manage chronic illness, older adults like Mrs. R often have multiple health care providers. The average number of physicians seen by Medicare patients ranges from 4 (with 1 chronic condition) to 14 (with 5 or more conditions) (Volgeli et al., 2007). As the number of health care providers increases, it is increasingly more challenging for patients to comprehend, recall, and reconcile instructions (National Academy of Social Insurance, 2003). Also, patients with multiple conditions tend to take more medications and are more likely to suffer adverse drug events (Boyd, Darer, Boult, Fried, Boult, & Wu, 2005; Gandi et al., 2003; Gurwitz et al., 2003; Tinetti, Bogardus, & Agostini, 2004).

What are the most important areas to assess in Mrs. R. in order to help to promote health and prevent disease and complications associated with chronic illness?
Older adults often present with complex medical problems that have been managed by multiple providers and have lengthy medication lists, several health concerns, and misconceptions about normal aging and health management. The goal of the first primary care visit is to properly evaluate the older adult with attention to their special needs. Subsequent visits will focus on addressing any additional health concerns, health promotion, and prevention.
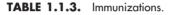
The purpose of the initial assessment is to complete a comprehensive history and a physical examination and to assess for common geriatric syndromes (Table 1.1.1) and iatrogenic illnesses. Iatrogenic illnesses are

TABLE 1.1.1. Common Geriatric Syndromes.

Iatrogenic Illness
Weight loss and malnutrition
Cognitive impairment
Depression
Urinary incontinence
Immobility & gait disorders
Falls
Visual and hearing impairments
Dizziness
Syncope
Sleep disorders
Pressure ulcers
Pain

TABLE 1.1.2. Health Maintenance.

Eye exam
Hearing exam
Colonoscopy
Mammogram
Pap smear
Bone density test
Dental exam
Foot exam
Functional ability test
Social support

TABLE 1.1.3. Immunizations.

Pneumonia
Influenza
Tetanus
Zoster

any illnesses that result from a diagnostic procedure or therapeutic intervention, that are not natural consequences of the patient's disease, and that are associated with medications, diagnostic and therapeutic interventions, nosocomial infections, and environmental hazards. Also essential to the care of older adults is complete health maintenance (Table 1.1.2) and immunization records (Table 1.1.3).

What is the plan of treatment for Mrs. R based on her history and physical examination results?

Hypertension. Order laboratory diagnostics to identify secondary causes and screen for target organ damage. Initial diagnostic evaluation may include assessment of kidney function (electrolytes), urine screening for protein or microalbumin, blood sugar levels, and an electrocardiogram. Continue hydrochlorothiazide.

Hypercholesteremia. Order lipid panel. Continue atorvastatin.

Osteoarthritis. Tylenol Arthritis, 1–2 tablets as needed but not to exceed 3 doses per day. Referral to orthopedic specialist for evaluation of osteoarthritis of the right knee.

Physical activity. Thirty minutes of physical activity per day is recommended for health promotion and prevention. This will be especially important in this case with Mrs. R's history of hypertension and risk for coronary heart disease and diabetes mellitus.

Nutrition. Low fat diet with emphasis on fruits, vegetables, complex carbohydrates, and protein.

Referrals. Gastroenterology for colonoscopy and gynecology for annual examination, Pap smear, mammography, and dexometry.

Recommendations. Ophthalmology for funduscopic examination. Mrs. R should have her mother assessed by a geriatrician to discuss pharmacological and nonpharmacological treatment options for Alzheimer disease.

Overall, this case underscores an opportunity for earlier identification of disease to improve treatment outcomes. Beyond the personal plan of care, the provider may pursue opportunities to offer staff education to accomplish this goal in the future.

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