Future Direction of Geriatrics: "Gerogeriatrics"

THE BEGINNINGS OF GERIATRICS

In 1909, Ignatz Leo Nascher, MD, coined the term "geriatrics" to underscore the necessity of considering the aging process (which he called "senility" at that time) and the diagnosis and treatment of diseases of old age as a separate or special branch of medicine.[1] Five years later, in 1914, Dr. Nascher published the first textbook on disorders of older adults and their treatment in the United States, called *Geriatrics. The Diseases of Old Age and Their Treatment*.[2]

A century has passed since Dr. Nascher's original description of geriatrics, with remarkable growth, expansion, and maturation of the science, clinical practice, and psychosocial aspects of the aging process and age-related disorders and disabilities and their consequences. A number of professional organizations such as the American Geriatrics Society and Gerontological Society of America have been established to address the health and quality of life of older adults through their support of programs and services directed toward research, education and training, clinical care, policy development, and public awareness. Government support for geriatrics and gerontology from such organizations as the Centers for Medicare and Medicaid Services, the National Institute on Aging, and the Department of Veterans Affairs (VA) has been fundamental in the successes achieved so far in the recognition, development, and importance of care of older adults. These organizations and agencies, as well as foundations, medical schools, and hospitals, have also been instrumental in supporting fellowship training programs in geriatrics, including in geriatric medicine and geriatric psychiatry.

WHERE WE ARE NOW IN GERIATRICS

Despite all of these examples of progress (and others too numerous to mention) in establishing and supporting the infrastructure and workforce to care for older adults, we are woefully short of the resources needed to adequately address the health and psychosocial needs of this rapidly expanding population. Those working in geriatrics and gerontology are familiar with the statistics of the growing "baby boomer" population that is reaching the age of 65 and will be responsible for approximately 20 to 21% of the total U.S. population.[3] Equally important is the population of 80 million people aged 65 and older projected for 2040, 15 million (or nearly 19%) of whom will be aged 85 and older. These "old-old" or "very old" constitute the group with the greatest need for health care and psychosocial support but pose the largest challenge for the healthcare system.

In a recent special series of articles published in this Journal, leading authorities in geriatrics[4] brought to our attention the Institute of Medicine report that clearly enunciated, "Unless action is taken immediately, the health care workforce will lack the capacity (in both size and ability) to meet the needs of older patients in the future."[5] Similarly, the VA expressed that "the inadequate number of health professionals with sufficient training and preparation to manage the needs of frail and dependent older adults undermines the successful delivery of appropriate healthcare to such veterans in the VA system."[6]

Current estimates indicate that from 26,000 to 36,000 trained geriatricians will be needed to meet the healthcare demands of a population aged 65 and older in 2040,[4,7] but despite the growth in fellowship training programs in geriatric medicine since its inception in the 1970s in the United States, there is an inadequate number of formally trained geriatric medicine physicians not only to care for older and frail patients, but also to provide training and education in geriatrics and gerontology, perform research in aging, and become leaders and policy-makers in aging.[8]

WHERE DO WE GO NOW TO MEET THE GERIATRIC DEMOGRAPHIC CHALLENGE?

Various leaders, task forces, and organizations in geriatrics and gerontology have suggested a number of approaches, pathways, and empirical trials to address the conundrum of a growing aging population with too few healthcare providers to care for them. As described in the Institute of Medicine report, these suggestions focus largely on enhancing and improving geriatric competency at the staff and trainee levels, increasing recruitment and retention of staff through financial incentives, and redesigning models of care that best fulfill the needs of older adults in the most cost-efficient manner.[5] Greater collaboration and forging coalitions with many medical specialties and subspecialties have also been recommended as a strategy to gain leverage to achieve the goals and objectives of geriatrics and gerontology.[9]

All of the above strategies are clearly important and perhaps will provide the long-term and permanent "fix" we need to meet the geriatric challenge we face, but an alternative approach would be to redefine what a trained geriatrician's role and responsibilities should be, given the supply and demand problem we face with no immediate practical solution. A survey conducted among directors of

DOI: 10.1111/j.1532-5415.2012.03896.x

0002-8614/12/$15.00

geriatrics academic programs were asked what types of patients would most benefit from a geriatrician's expertise and services. The consensus among these leaders in geriatrics was that patients who would most benefit from a geriatrician would be those aged 85 and older and those with frailty, geriatric syndromes, severe functional impairment, and multiple complex healthcare problems.[7] Practice patterns support these opinions regarding the type of patients that primary care providers most often see and refer to geriatricians.[10] Moreover, the various geriatric conditions or geriatric syndromes disproportionately increase as a person reaches the age of 80 and older. Most geriatric conditions and syndromes will double in occurrence from age 65 to 69 to age 80 to 84 or triple in frequency from age 65 to 69 to age 85 to 89.[11] Thus, it is this author's opinion and recommendation that formally trained geriatricians focus on care of the very old (old-old, i.e., ≥ 80). I now call this "gerogeriatrics"—a subspecialty of geriatrics. This would be analogous to the subspecialty of neonatology within the specialty of pediatrics.

THE CASE FOR GEROGERIATRICS

In addition to lack of an adequate number of geriatricians to care for the rapidly increasing number of very old people, there are many important clinical concerns surrounding the health and care of the very old that remain unresolved or are controversial. Such clinical issues will greatly affect the safety, quality, and cost of care of older adults. The following are but a few examples of clinical and health concerns of the very old population (≥ 80 unless stated otherwise) that current and future gerogeriatricians need to address.

Glycemic Control in Individuals with Diabetes Mellitus

Although the standard of practice for prevention of micro- and macrovascular complications from diabetes mellitus has been to achieve a target glycosylated hemoglobin (HbA1c) level of less than 7%,[12] the risk of hypoglycemia is high in certain high-risk populations, particularly the very old. Recent data suggest that nearly half of hospitalizations for adverse drug reactions (insulin, oral hypoglycemic agents, antiplatelet drugs, and anticoagulants) occurred in persons aged 80 and older.[13] Moreover, older adults with diabetes mellitus with complications of frailty and dementia (who also tend to be the very old) have greater risks of hypoglycemic episodes.[14,15] If vascular complications occur in poorly controlled diabetes mellitus in approximately 10 years, the necessity for tight glycemic control in persons with a life expectancy of less than 10 years (e.g., aged $\geq$ 80) without significant existing vascular diseases needs to be strongly reconsidered.

Clinical trials in very old adults with diabetes mellitus are sorely needed to resolve this issue.

Treatment of Systolic Hypertension

Most clinicians are well aware that hypertension, particularly systolic hypertension, is associated with a multitude of cardiovascular, cerebrovascular, and renovascular complications, but whether active lowering of blood pressure, especially systolic pressure, is beneficial or harmful in the very old is unclear. Earlier studies[16,17] suggested that, in the very old population, all-cause mortality was inversely associated with systolic pressure. Survival appeared to be the highest at systolic pressures from 140 to 160 mmHg, with one study[17] showing a U-shaped relationship (greater mortality risk with systolic pressures lower than 120 mmHg and higher than 160 mmHg). The well-publicized Hypertension in the Very Elderly Trial was thought to provide definitive evidence of the clinical value of treating sustained systolic hypertension in persons aged 80 and older,[18] but a number of design shortcomings of the study has limited generalization and full clinical implementation of the findings into daily clinical care of the very old.[19,20] Consequently, clinicians caring for the very old still face the dilemma of whether systolic blood pressure should be lowered in adults aged 80 and older who do not have other associated comorbidities and disabilities that contraindicate antihypertensive therapy.

Once again, we need gerogeriatricians to address these questions in clinical trials, carefully designed observations studies, and good clinical care and follow-up.

Statin Treatment of Hypercholesterolemia

Much like hypertension, most physicians know that hyperlipidemia, particularly hypercholesterolemia, is associated with risk of cardiovascular disease. Treatment of hypercholesterolemia with lipid-lowering agents such as the statins (3-hydroxy-3-methylglutaryl-coenzyme A reductase inhibitor) has become the standard of practice, but no randomized clinical trials have examined the effect and side effects of statin therapy in very old adults. A recent review of this topic suggested that there was no evidence that statins decreased all-cause mortality in adults aged 80 and older without known vascular disease; that lower levels of cholesterol may be associated with higher all-cause mortality, and that current data are insufficient to make any recommendations on initiation or continuation of statins for those aged 80 and older with known cardiovascular disease.[21]

With few studies and objective data for prescribing statins in the very old, gerogeriatricians need to carefully examine and design studies that can provide objective information on whether prescribing statins for hypercholesterolemia in persons aged 80 and older is warranted.

Long-Term Care in Skilled Nursing Facilities

The U.S. nursing home population is presently approximately 1.6 million. With the average age of nursing home residents being approximately 85 and the growth of the population aged 85 and older projected to be nearly 15 million (see earlier discussion), it is not surprising that this group of institutionalized individuals will increase rapidly by 2040. With nursing homes accepting more-complex and sicker patients from the hospital and community at large, the need for geriatric expertise in this setting becomes obvious, but questions of reimbursement; logistics of visiting many nursing homes; low professional stature; and administrative bureaucracy, liability, and regulations

have decreased the number of physicians actively involved with care of nursing home residents.

A call for establishing nursing home physician specialists has been suggested as one solution.[22] Alternatively, gerogeriatricians can assume this specialist role.

CONCLUSION

The care of older adults has become a major personal and public health crisis given the rapidly changing demographics; limited growth of formally trained geriatricians; greater demands for patient safety and quality of care through practice guidelines and performance measures that may not be applicable or appropriate for very old patients; and limited to no objective data on how to best diagnose, treat, and prevent diseases and disorders that afflict the most vulnerable and frail older adults (the very old). In addition, with the current economic deficits and challenges in maintaining funding of Medicare, there will be more disincentives to pursue careers in the specialty of geriatrics. The old adage of "less is more" may not always be appropriate or applicable, especially in health care, where supply and demand do not match; however, if leaders in geriatrics and gerontology can continue to strategize, collaborate, cooperate, and innovate on how we may best care for those most vulnerable individuals as the aging process ensues, perhaps less can be more, such as focusing on "gerogeriatrics."

Thomas T. Yoshikawa, MD
Department of Veterans Affairs, Deputy Chief of Staff for Geriatrics, Extended Care and Special Projects, Greater Los Angeles Healthcare System and Department of Medicine, David Geffen School of Medicine, University of California at Los Angeles
Los Angeles, California

ACKNOWLEDGMENTS

Conflict of Interest: The author receives a stipend from the American Geriatrics Society as editor in chief of the *Journal of the American Geriatrics Society*.

Author Contributions: Thomas Yoshikawa is the sole contributor to this paper.

Sponsor's Role: There were no sponsors for this paper.

REFERENCES

1. Nascher IL. Geriatrics. NY Med J 1909;90:358–359.
2. Nascher IL. Geriatrics. The Diseases of Old Age and Their Treatment. Philadelphia: P. Blakiston's Son & Co., 1914.
3. U.S. Census Bureau. Projected Population of the United States by Age and Sex: 2000 to 2050. Washington, DC: Department of Commerce, 2004 [on-line]. Available at http://www.urban.org/retirement_policy/reference.cfm Accessed December 20, 2011.
4. Fried LP, Hall WJ. Leading on behalf of an aging society. J Am Geriatr Soc 2008;56:1791–1795.
5. Institute of Medicine. Retooling for an Aging America. Building the Health Care Workforce. Washington, DC: The National Academies Press, 2008.
6. Shay K, Yoshikawa TT. Overview of VA healthcare for older veterans: Lessons learned and policy implications. Generations 2010;34:21–28.
7. Warshaw GA, Bragg EJ, Fried LP et al. Which patients benefit the most from a geriatrician's care? Consensus among directors of geriatrics academic programs. J Am Geriatr Soc 2008;56:1796–1801.
8. Bragg EJ, Warshaw GA, Meganathan K et al. National survey of geriatric medicine fellowship programs: Comparing findings in 2006/7 and 2001/2 from the American Geriatrics Society and Association of Directors of Geriatric Academic Programs geriatrics workforce policy studies center. J Am Geriatr Soc 2010;58:2166–2172.
9. Hazzard WR. Defining geriatrics to force coalitions and gain leverage. J Am Geriatr Soc 2008;56:1812–1815.
10. Callahan CM, Weiner M, Counsell SR. Defining the domain of geriatric medicine in an urban public health system affiliated with an academic medical center. J Am Geriatr Soc 2008;56:1802–1806.
11. Cigolle CT, Langa KM, Kabeto MU et al. Geriatric conditions and disability: The Health and Retirement Study. Ann Intern Med 2007;147:156–164.
12. American Diabetes Association. Standards of medical care for patients with diabetes mellitus. Diabetes Care 2003;26(Suppl):S33–S50.
13. Budnitz DS, Lovegrove Mc, Shehab N et al. Emergency hospitalizations for adverse drug events in older Americans. N Engl J Med 2011;365:2002–2012.
14. Lee SJ, Boscardin WJ, Cenzer IS et al. The risks and benefits of implementing glycemic control guidelines in frail older adults with diabetes mellitus. J Am Geriatr Soc 2011;59:666–672.
15. Feil DG, Rajan M, Soroka O et al. Risk of hypoglycemia in older veterans with dementia and cognitive impairment: Implications for practice and policy. J Am Geriatr Soc 2011;59:2263–2272.
16. Oates DJ, Berlowitz DR, Glickman ME et al. Blood pressure and survival in the oldest old. J Am Geriatr Soc 2007;55:383–388.
17. Molander L, Lovheim H, Norman T et al. Lower systolic blood pressure is associated with greater mortality in people aged 85 and older. J Am Geriatr Soc 2008;56:1853–1859.
18. Beckett NS, Peters R, Fletcher AE et al. Treatment of hypertension in patients 80 years of age or older. N Engl J Med 2008;358:1887–1898.
19. Larson EB. Evidence, guidelines, performance incentives, complexity and old people: A clinician's dilemma. J Am Geriatr Soc 2009;57:353–354.
20. Abramov D, Cheng H. Controversy in treating the oldest old with hypertension: Is the hypertension in the very elderly trial the final answer? J Am Geriatr Soc 2009;57:570–571.
21. Petersen LK, Christensen K, Kragstrup J. Lipid-lowering treatment to the end? A review of observational studies and RCTs on cholesterol and mortality in 80+ year olds. Age Ageing 2010;39:674–680.
22. Katz PR, Karuza J, Intrator O et al. Nursing home physicians specialists: A response to the workforce crisis in long-term care. Ann Intern Med 2009;150:411–413.