Essence of progress in geriatric cardiology

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1 Introduction

Prior to 1970, the slow, steady and substantial development of medical knowledge over centuries for improved well being and survival from birth was not matched by the elderly population. Since 1970, however, the elderly have also shared in these developments, exhibiting substantial improvement in survival among people over 60 years of age. It is also been since 1970 that geriatric cardiology has experienced dynamic progress. This is indicated by the US vital statistics, Table 1.

Table 1. The life expectancy for survival of white men in the years indicated: US Vital Statistics—Mortality. This data was reproduced from the World Almanac 2011.

Age in years	1850 AD	1900AD	1970 AD	1980 AD	1990 AD	2000 AD
birth	38.3	48.3	67.9	70.8	72.7	74.8
50	21.6	27.7	23.3	25.3	26.7	28.2
60	15.6	14.4	16.1	17.6	18.7	20.0
70	10.2	9.0	10.4	11.4	12.1	13.0
80	5.9	5.1	6.2	6.8	7.1	7.6

2 Development of Geriatric Cardiology

Based on the survival statistics, life expectancy at birth improved from 48.3 years in 1900 to 67.9 in 1970, while there was scarcely an iota of improvement in further survival from 1850 to 1970 for people of 60 years and older. Since 1970, however, life expectancy for those of the so-called post retirement years has been steadily increasing. The target of choice of physicians for early study may be worth considering as the reason why geriatric cardiology has only recently appeared among the medical specialties.

The geriatric cardiologist has come to see the cardiovascular system within a perspective of an aging body that is

likely to be frail, noncompliant, disorganized, and confused, experiencing impaired function of several organ systems (particularly the kidney), and damage from earlier diseases. Poor lifestyle-choices, inadequate preventative health habits, consuming a great variety of frequently prescribed medications, and in a situation where the parsimony of science (Occam's Razor) no longer applies, but rather the development of geriatric cardiology was coincident with improving survival among the so-called post-retirement elderly after 1970. Consequently, it is reasonable for one to ascribe partial credit for the improvement in survival to geriatric cardiology, in a cohort where multiple health problems are likely to coexist.

Although William Osler (1849~1919) was the leading medical educator for the last third of the 19th and early 20th century, he neglected to document recognition of the continuing contributions by the elderly. In a lecture in 1906 on the fixed period, he said: "the effective, moving, vitalizing work of the world is done between the ages of twenty-five and forty",^[1] and it is downhill from then. Delivered during his mid-50's, Osler's speech was portrayed by newspapers with headlined reports, "Osler recommends chloroform at sixty". The "fixed period" speech is included in his book of collected addresses, "Aequanimitas, with other Addresses to Medical Students". Perhaps, he should have recognized Sophocles (497~406 BC), writing of the Oedipus at Colos in his 90th year, and Galileo (1564~1642 AD), as father of modern science, and Isaac Newton (1642~1727 AD), for his contributions to the fundamentals of physics, and Benjamin Franklin (1705~1790 AD), for public service until age 82. Some of Osler's contemporaries, including Alexander Graham Bell and Henrik Ibsen, could also have reminded him of their continuing contributions—by the elderly. Nonetheless, medical education failed to give adequate attention to survival after the so-called retirement age.

Although geriatric cardiology occurred as a whisper during the first half of the 20th century, civilization had exploded with a bang.^[2] Great progress in communication, transportation, food, and mass production expanded rapidly. On the campuses of 55% institutions of higher learning, gerontology became part of the curriculum^[3]. Clearly,

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articles, societies, and institutional teachings accumulated enormous advances in scientific research in the biologic, physiologic, psychological areas, and in social processes. This accelerated progress resulted in attention to geriatric cardiology and can be reasonably associated with the improved life expectancy observed among the aged for the first time during the 20th century.

By the mid to late 20th century, the medical community began to recognize the importance of improving the circumstances for the aging and to develop active research in gerontology and geriatrics, particularly cardiology. They realized that aging was not simply deterioration, but rather resulted from injury, disease, and functional disturbances. They rapidly attacked its problems with increasing effectiveness. Autonomic nervous system agents, calcium channel blockers, angiotensin converting enzyme (ACE) inhibitors, angiotensin receptor blockers, and adrenergic blocking drugs appeared. Elevated cholesterol levels became a recognized source of atherosclerotic plaques and therefore became a prophylactic target. The drug, MER-29 triparanol, blocked part of cholesterol's synthetic pathway and became widely prescribed after its discovery in December 1959 at Princeton; but soon was recognized to produce such dreadful complications, and associated legal repercussions, that it was rapidly withdrawn from the market.^[4] However, some new drugs, such as the HMG-CoA reductase inhibitors, and the statins, entered the market with great promise. They showed few immediate side effects and were consistently deemed effective, often lowering cholesterol levels by as much as 50 points or more. However, there were reports of their underuse.^[5]

Appreciation of the cardiovascular complications of type 2 diabetes and new methods of drug treatment (e.g., sulfonyleureas, biquanides, thiazolidinediones and newer adjunctive classes) appeared, with the prevention of these cardiovascular complications.

By 1970, Raymond Harris presented Geriatric Cardiology as a new specialty, and published "The Management of Geriatric Cardiovascular Disease".^[5] It was a definitive volume and soon thereafter more than a dozen books were published throughout the world and thereby founded the specialty of Geriatric Cardiology to guide the management of elderly patients. In 1986, Raymond Harris again emphasized these guides with "Clinical Geriatric Cardiology: Management of the Elderly Patient", and shows how life expectancy among the elderly has only improved during the last 30 years of the 20th century. During the 1970's, the rehabilitation of elderly patients with recognized cardiac disease captured special interest and management through the works of Nannette K. Wenger, Herman K. Hellerstein and others. Consequently, the salvage of older patients with substantially improved survival potential, as well as improvement in the quality of life, occurred.

3 The society of geriatric cardiology

Founded in 1986 by world-renowned clinical cardiologists and the Council on Geriatric Cardiology, the Society was established by Raymond Harris to meet cardiovascular diseases among aging men and women anticipated to number 54.1 million people over age 65 by the year 2030, and 7.1 million over age 85. The Society has sponsored symposia and organized conferences on all aspects of geriatric cardiology and continues to contribute.

4 Summary

Although a relatively new specialty, geriatric cardiology has grown substantially during the last twenty of years, with greatest attention paid only during the last decade. For perspective, most physicians have already appreciated the great improvement in both length and quality and fullness of life achieved, both for infants and for the productive years of life; but it was only recently demonstrated that improvement in life expectancy has been shared among people who are 60 years old or older.

Elderly people are (1) the most rapidly increasing and heterogeneous group in America, often referred today as the "graying of America"; (2) they have been pejoratively designated to anyone over age 65; (3) have escaped debilitating illnesses to be able to grow old; (4) rarely suffer from only a single disease; and (5) may have already endured physical and emotional discomfort that has required, either adjustment or maladjustment, by the unique skills of a managing physician. It becomes clearly meaningless, if not dangerously misleading, to consider the elderly as a homogeneous single group.

Disclosure

The author states that he does not have a significant financial interest or other relationship with any product manufacturer or provider of services discussed in this article.

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