Mortality and Cognitive Status Among Elderly Canadians Living in the Community and in Institutions: The Canadian Study of Health and Aging

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Between February 1991 and May 1992, an age-stratified random sample of Canadians aged 65 and over was recruited by the Canadian Study of Health and Aging (CSHA).¹ The sample included 9,008 people living in the community and 1,255 living in institutions. The primary objective of the CSHA was to estimate the prevalence of dementia. People living in the community were screened for cognitive impairment using the Modified Mini-Mental State (3MS) Examination.² Those in the community who failed the test, and all those in institutions, were offered a clinical and psychometric examination that classified them as cognitively normal, cognitively impaired but not demented (CIND), or demented, using established criteria.³

In 1993, about two years after the initial prevalence survey, the participants or their relatives were interviewed briefly by telephone. The purpose of this was to maintain contact with the subjects in anticipation of a second survey, which began recently. If the subject had died in the interim the date of death was recorded. We report here the mortality of the initial cohort over the two-year period, in relation to residence in the community or institution, sex, and cognitive status at the initial examination.

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TABLE I
Age-adjusted Mortality Ratios by Sex, Residence and Cognitive Status among Canadians Aged 65 and Over

Residence	Cognitive Status	Mortality Ratio	
		Women	Men
Community	Normal	1*	1*
Community	Impaired, not demented	2.17	1.95
Community	Demented	2.67	2.84
Institution	Normal	3.06	2.11
Institution	Impaired, not demented	3.52	3.09
Institution	Demented	6.03	5.02

* Reference group

METHODS

Using the date of birth, the date of examination in the CSHA, and the date of death or re-contact, each subject's contribution to the person-years lived at ages 65-69, 70-74, 75-79, 80-84, 85-89, 90 and over was estimated, and the deaths were assigned to these age groups. Poisson regression analysis⁴ was used to estimate the effects of residence, sex and cognitive status on the risk of dying, adjusted for age.

RESULTS

Of the 10,263 subjects in CSHA the vital status approximately two years later was ascertained in 9,943 (97%). Seven hundred (8%) of those living in the community, and 425 (35%) of those living in institutions had died in the interim.

Table I shows the age-adjusted mortality ratios by sex and cognitive status, compared with those in the community with normal cognitive status. Having dementia trebled the risk of dying among subjects in the community, and doubled the risk for those in institutions. The risk of dying among subjects with CIND was intermediate between that for the cognitively normal

and the demented in both the community and institutions, but in institutions the risk was closer to that of the normal than of the demented subjects. Being in an institution increased the risk of dying within each level of cognitive status, but the effect for men was somewhat less than that for women. The greatest mortality ratio was that for women with dementia in institutions, who had a six-fold greater risk of dying than women in the community who were cognitively normal.

DISCUSSION

There have been many studies of mortality among elderly people with dementia. The results have varied considerably, depending on the patient population studied and the groups used for comparison.^{5,6} In general, the reported mortality ratios have been higher for in-patients than for individuals in the community. For example, in a study of psychiatric inpatients Kay⁷ found mortality ratios of 4.5 in men and 5.1 in women, whereas a follow-up study by Kay and Bergmann⁸ of a random sample of people at home, the mortality ratio for those with dementia was 2.2 in men and 1.9 in women. These are comparable with the results presented here. There

have been no previous studies of the category CIND. The sex differences in the mortality ratios among subjects in institutions may reflect sex differences in admission to institutions, or in the distribution of the type of dementia or co-morbidity. However, the numbers of deaths on which the mortality ratios are based are relatively small. The five-year follow up study of CSHA will allow us to examine these differences in more detail.

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B O O K R E V I E W R E C E N S I O N

Preventive Nutrition: The Comprehensive Guide for Health Professionals

Adrianne Bendich, Richard J. Deckelbaum (Eds). Totowa, New Jersey: Humana Press Inc, 1997; 579 pp. hardcover, Can\$125. ISBN: 0-89603-351-1

Preventive Nutrition offers a detailed, extensive review of evidence supporting links between diet and cancer, cardiovascular disease, birth defects, immunocompetence, osteoporosis and eye health. The book has 30 chapters that are organized in five parts. The information provided is "based on the totality of evidence, rather than on findings of any single study."

Part I deals with the public health implications of preventive nutrition. It includes chapters on research findings on the role of nutrition in the prevention of cancer of the lung, upper gastrointestinal tract, breast and colon as well as the role of fats, antioxidants, iron and folate in cardiovascular disease risk. Two chapters provide reviews of some of the over 500 non-nutritive components of food implicated in the prevention of chronic disease development. A drawback of this section occurs in the chapter *Dietary Fat and Coronary Heart Disease*, in which the presentation of the technical data could have been strengthened by the addition of a table of fatty acid names and chemi-

cal signatures, as not all readers may recall the purely numerical nomenclature used.

Part II is devoted to a discussion of the role of nutrition in the prevention of major disabilities. In Part III, the role of nutrition in optimal birth outcomes is discussed. Recent research concerning birth defect risk reduction through use of perinatal folate and prevention of DNA damage to sperm with antioxidant vitamins is discussed here. The links between maternal nutritional status and preterm birth and the role of dietary polyunsaturated fatty acids in neurodevelopment are thoroughly evaluated.

The rest of the book illustrates the benefits and implications of preventive nutrition in developed and developing nations. The importance of effective program strategies are discussed, including food fortification, nutrition and food policy development, primary health care and education. Examples of national policies, nutrition goals and preventive programs are provided.

A strength of this well-written book is the inclusion of extensive bibliographies for each of the 30 chapters. Another is that several authors have summarized comparisons between reviewed studies in tabular formats. Use of nutrient supplements was not supported by existing evidence, except in the case of folate for the primary prevention of neural tube defects. Thus, the book advocates consumption of a healthy diet and calls for further research before public guidelines regarding nutrient supplements are developed.

This book is an excellent resource for public health professionals looking for accurate, up-to-date and comprehensive information on current research and recommendations on nutrition in the prevention of disease and disability.

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