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EDITORIAL

The concept of frailty is the subject of growing interest and becoming increasingly visible in scientific literature and within the general public. Often used in the broad sense to mean vulnerability, disability, and dependence; sometimes present without being named or, on the contrary, used so often as to become somewhat hackneyed, this multifaceted concept nonetheless describes a situation that is very real.

In fact, various stakeholders and professionals have a fairly clear idea of what frailty means within their own fields of expertise. The challenge now lies in reaching an interdisciplinary consensus.

Bearing this perspective in mind, this issue offers you a selection of articles discussing various aspects of frailty and aging that takes the many meanings of the term into consideration.

On behalf of the entire team, I wish you happy holidays and the best for the new year!

Audrey Attia, *bibliothécaire*

FOCUS ON... *Frailty and Aging*

COMORBIDITY, DISABILITY OR FRAILTY?

Linda P. Fried, Luigi Ferrucci, Jonathan Darer, Jeff D. Williamson, and Gerard Anderson. Untangling the concepts of disability, frailty, and comorbidity: implications for improved targeting and care. *Journal of Gerontology: Medical Sciences, Vol. 59 (3), 2004, p. 255-263.*

Three terms are commonly used interchangeably to identify vulnerable older adults: comorbidity, or multiple chronic conditions, frailty, and disability. However, in geriatric medicine, there is a growing consensus that these are distinct clinical entities that are causally related. Each, individually, occurs frequently and has high import clinically.

This article provides a narrative review of current understanding of the definitions and distinguishing characteristics of each of these conditions, including their clinical relevance and distinct prevention and therapeutic issues, and how they are related. Review of the current state of publishing knowledge is supplemented by targeted analyses in selected areas where no current published data exist.

Overall, the goal of this article is to provide a basis for distinguishing between these three important clinical conditions in older adults and showing how use of separate, distinct definitions of each can improve our understanding of the problems affecting older patients and lead to development of improved strategies for diagnosis, care, research, and medical education in this area.

A FRAILTY INDEX

Kenneth Rockwood, Alexander Mogilner, Arnold Mitnitski. Changes with age in the distribution of a frailty index. *Mechanisms of Ageing and Development 125 (2004), p. 517-519*

Models of human mortality include a factor that summarizes intrinsic differences in individual rates of ageing, commonly called frailty. Frailty also describes a clinical syndrome of apparent vulnerability.

In a representative, cross-sectional, Canadian survey (n=66,589), the authors calculated a frailty index as the mean accumulation of deficits and previously showed it to increase exponentially with age. Here, its density function exhibited a monotonic change in shape, being least skewed at the oldest ages.

Although the shape gradually changed, the frailty index was well fitted by a gamma distribution. Of note, the variation coefficient, initially high, decreased from middle age on. Being able to quantify frailty means that health risks can be summarized at both the individual and group levels.

A QUESTIONNAIRE TO SCREEN FRAILTY

Margaret Matthews, Amy Lucas, Rebecca Boland, Victor Hirth, Germaine Odenheimer, Darryl Wieland, Harriet Williams and G. Paul Eleazer. Use of a questionnaire to screen for frailty in the elderly: an exploratory study. ***Aging and Clinical Experimental Research, Vol. 16 (1), p. 34-40.***

In a pilot study of community-dwelling geriatric clinic patients (N=48, aged 63-90) the authors examined the use of a questionnaire to classify frailty status by comparing it with standardized markers of frailty. The questionnaire, developed by Strawbridge et al. in 1998, defines frailty as difficulty in more than one of four domains of functioning: physical, cognitive, sensory and nutritive.

Methods: Subjects were classified as frail or not frail by questionnaire and assignment was compared to testing of physical and cognitive measures in cross-sectional analysis. Demographic variables, functional inventories, physical activity levels, clinician impression of frailty, and 3-year health outcomes were also examined.

Results: Thirty-three percent of subjects were classified as frail. Frailty classification by the Strawbridge questionnaire was correlated to Timed Up and Go and repetitive Sit-to-Stand tests, bimanual dexterity and cognitive tests. A discrepancy was found between assignment of cognitive difficulty, by questionnaire and cognitive performance. When overall Strawbridge frailty scores were modified to account for those with poor cognitive performance who did not report cognitive difficulty, the prevalence of frailty increased to 42%. At 3-year follow-up, the modified Strawbridge frailty classification ($p<0.05$) and clinician impression of frailty ($p<0.01$) were both significant predictors of death and institutionalization combined.

Conclusions: This study serves as an initial inquiry into the potential validity and utility of the Strawbridge frailty questionnaire as a simple screening tool to identify patients who may warrant detailed functional testing.

IS GRIP STRENGH A GOOD MARKER OF FRAILTY?

Holly Syddall, Cyrus Cooper, Finbarr Martin, Roger Briggs, Avan Aihie Sayer. Is grip strength a useful single marker of frailty? ***Age and Ageing, Vol. 32 (6), 2003, p. 650-656.***

Chronological age is widely used as a marker of frailty in clinical practice. However there can be variation in frailty between individuals of a similar age. Grip strength is a powerful predictor of disability, morbidity and mortality which has been used in a number of frailty scores but not as a single marker of frailty. The purpose of this study was to investigate the potential of grip strength as a single marker of frailty in older people of similar chronological age.

The results show that in men, lower strength correlated significantly with ten ageing markers compared to chronological age which was significantly associated with seven. In women, there were six significant relationships for grip compared to three for age. The greater number of relationships between grip strength and ageing markers was not explained by the association between grip strength and age, and remained after adjustment for adult size.

In conclusion, grip strength was associated with more markers of frailty than chronological age within the narrow age range studied. Grip strength may prove a more useful single marker of frailty for older people of similar age than chronological age within the narrow age range studied. Grip strength may prove a more useful single marker of frailty for older people of similar age than chronological age alone. Its validity in a clinical setting needs to be tested.

FRAILTY AND GERIATRIC ASSESSMENT

Jennie L. Wells, Jamie A Seabrook, Paul Stolee, Michael J. Borrie, Frank Knoefel. State of the art in geriatric rehabilitation. Part 1: review of frailty and comprehensive geriatric assessment. ***Archives of physical medicine and rehabilitation, Vol. 84, June 2003, p. 890-897.***

The objective was to increase recognition of geriatric rehabilitation and to provide recommendations for practice and future research. The review was conducted using Cinahl, Medline and Cochrane databases and identified major geriatric rehabilitation subtopics such as **frailty**, comprehensive geriatric assessment, admission screening, assessment tools, interdisciplinary teams, hip fracture, stroke, nutrition, dementia, and depression. Part I of this review describes the first 5 subtopics, covering concepts and processes in geriatric rehabilitation. Part II focuses on the latter 5 subtopics, covering common clinical problems in frail older persons. To conclude, frail elderly patients should be screened for rehabilitation potential. Standardized tools are recommended to aid diagnosis, assessment, and outcome measurement. Medication reviews and self-medication programs may be beneficial. Future research should address cost effectiveness, consensus on outcome measures, which components of geriatric rehabilitation are most effective, screening, and what outcomes are sustainable.

IS FRAILTY INEVITABLE?

Jean-Pierre Michel. Is frailty inevitable with advancing age? In Les colloques de L'Institut Servier. Vulnérabilité et vieillissement : comment les prévenir, les retarder ou les maîtriser ? ("Vulnerability and aging: can they be prevented, delayed or controlled?") Paris: Elsevier, 2002, pp. 177-184.

Jean-Pierre Michel, from the Department of Geriatrics, University Hospital of Geneva (Switzerland) starts by defining "frailty" and "vulnerability" and explains the difference between these two terms. The term "vulnerability" does not have any age connotation, whereas there are indications of frailty at the end of a long intrinsic process during which the body becomes more and more fragile. This process (enfeeblement) and the state (frailty) to which it inevitably leads explains why, although there is no clinical heart, kidney or respiratory failure linked to advancing age, they may be present in a silent form, in the background, and more common at an advanced age. The introduction of the term "frailty" means that geriatricians now have a dynamic and interactive explanatory approach to the fundamental concepts (biomedical, functional, environmental and qualitative) that they require for better care of the aging and/or elderly.

The author discusses the following points : An attempt to define vulnerability and frailty; Possible recognition of the state of "frailty"; Is the process of enfeeblement irreversible; Ways to recognize the process of enfeeblement and the state of frailty; Is it possible to delay or slow down the enfeeblement process and frailty?

FOCUS ON... Frailty and Aging (3/4)

SOCIAL NETWORKS OF FRAIL ELDERS

Janet Fast, Norah Keating, Pam Otfinowski, Linda Derksen. Characteristics of family/friends care networks of frail seniors. *Canadian Journal on Aging/La Revue canadienne du vieillissement, Vol. 23 (1), p. 5-19.*

This paper tests assumptions often made by policy makers and practitioners that networks of family, friends and neighbours are able to provide sustained care to frail elderly Canadians. Using national survey data, the authors examined characteristics of the care networks of 1,104 seniors living with a long-term health problem. Care networks were found to vary considerably in size, relationship composition, gender composition, age composition, and proximity, and these network characteristics were found to help explain variations in the types and amounts of care received. As a result, network characteristics that might place seniors at risk of receiving inadequate care (including small size and higher proportions of non-kin, male, and geographically distant members) were identified. These risk factors appear to be poorly reflected in most existing policy.

FRAILTY AND CAREGIVERS

Maida J. Sewitch, Jane NcCusker, Nandini Dendukuri and Mark J. Yaffe. Depression in frail older elders: impact on family caregivers. *International Journal of Geriatric Psychiatry, vol. 19, 2004, p. 655-656.*

The objectives of the study were to examine the relationship between depression among medically ill, frail elders and family caregivers' hours of care, health status and quality of life. A cross-sectional study of 193 family caregivers of seniors treated in the emergency department was conducted. Mean caregiver age was 60.0 ± 16.1 years and 70.5 were female. More caregivers of depressed seniors provided more care in the previous month (37.3% vs 22.4%, p + 0.03), had poor mental health (63.5% vs 47.0%, p = 0.03) and poor perceived quality of life (63.5% vs 50.4%, p = 0.04) compared to caregivers of non-depressed seniors. In conclusion, psychosocial support may be needed for caregivers of depressed seniors.

INTERDISCIPLINARITY

Carmel Bitondo, Kathryn Hyer, Karen S. Feldt, David A. Lindemann, Jan Busby-Whitehead, Sherry Greenberg, Robert D. Kennedy, Ellen Flaherty. Frail older patient care by interdisciplinary teams: a primer for generalists. *Gerontology & Geriatrics Education, Vol. 24 (2) 2003, p. 51-62.*

Frail older patients-unlike younger persons in the health care system or even well elders-require complex care. Most frail older patients have multiple chronic illnesses. Optimum care cannot be achieved by following the paradigm of ongoing traditional health care, which emphasizes disease and cure. Because no one health care professional can possibly have all the specialized skills required to implement such a model of health care delivery, interdisciplinary team care has evolved. This paper describes the roles of the participating team members in the context of interdisciplinary care for frail older adults. In addition, the challenges that occur when Geriatric Interdisciplinary Teams evolved in providing care to frail older patients are identified and discussed.

LIFE SATISFACTION AND FRAILTY

Nynke Frieswijk, Bram P. Buunk, Nardi Steverink, Joris P. J. Slaets. The interpretation of social comparison and its relation to life satisfaction among elderly people: does frailty make a difference?
Journal of gerontology: Psychological Sciences, Vol. 59B (5), 2004, p. 250-257.

The authors examined the interpretation of upward and downward social comparison and its effect on life satisfaction in a questionnaire study among 444 community-dwelling elderly persons with various levels of frailty. As the authors expected, elderly persons with higher levels of frailty were less inclined to contrast and more inclined to identify themselves with a downward comparison target. Furthermore, they were more inclined to contrast themselves with an upward comparison target, but contrary to the author's expectations, they were also more inclined to identify with this target. Upward identification and downward contrast related positively, whereas upward contrast and downward identification related negatively to life satisfaction. These effects existed independently of the negative effect of frailty on life satisfaction.

HIGH QUALITY MEDICAL CARE

Neil S. Wenger, David H. Solomon, Carol P. Roth, et al. The quality of medical care provided to vulnerable community-dwelling older patients. *Annals of Internal Medicine, 2003, 139, p. 740-747.*

Many people 65 years of age and older are at risk for functional decline and death. However, the resource-intensive medical care provided to this group has received little evaluation. Previous studies have focused on general medical conditions aimed at prolonging life, not on geriatric issues important for quality of life.

The aim of this observational cohort study was to measure the quality of medical care provided to vulnerable elders by evaluating the process of care using Assessment Care of Vulnerable Elders quality indicators. This study shows that care for vulnerable elders falls short of acceptable levels for a wide variety of conditions. Care for geriatric conditions is much less optimal than care for general medical conditions.

ADMINISTRATION IMPACT ON QUALITY OF CARE

Castle NB, Banaszak-Holl J. The effect of administrative resources on care in nursing homes. *Journal of Applied Gerontology 2003 September; 22(3): 405-424.*

Examines whether the hours spent on the job by nursing home administration staff have an effect on the quality of care using a variety of widely recognized quality indicators. Results indicate that quality indicators are directly associated with the number of full time equivalent hours of administration, and provides preliminary evidence that intensity of facility administration can have an impact on quality of care.

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FOCUS ON... Frailty and Aging (4/4)

INFORMED CONSENT

Jeremy S. Barron, Patricia L. Duffey, Linda Jo Byrd, Robin Campbell and Luigi Ferrucci. Informed consent for research participation in frail older persons. ***Aging and Clinical Experimental Research, Vol. 16 (1), p. 79-85.*** Informed consent has been the most scrutinized and controversial aspect of clinical research ethics. Institutional review boards (IRBs), government regulatory agencies, and the threat of litigation have all contributed to increasingly detailed consent documents that hope to ensure that subjects are not misled or coerced. Unfortunately, the growing regulatory burden on researchers has not succeeded in protecting subjects, but has rather made the consent process less effective and has discouraged research on vulnerable populations. As a matter of fact, investigators and ethicists continue to identify failures of the consenting process, particularly concerning participation in research of older individuals. The challenges involved in ensuring appropriate consent from the elderly include physical frailty, reduced autonomy and privacy, and impaired decision-making capacity due to dementia, or other neuropsychiatric illnesses. Clearly, the frail elderly represent a vulnerable population that deserves special attention when developing and evaluating an informed consent process. The authors feel that two important ethical conflicts should be kept in mind. First, although vulnerable older patients must be protected, protection should not prevent research on this important population. Similarly, because informed consent documents are often written to prevent legal jeopardy, these technical documents, expressed in language sometimes difficult to understand, can prevent comprehension of basic issues, defeating the ethical purpose of human protection.

RESEARCH ETHICS

Adil E. Shamoo and David B. Resnik. Responsible Conduct of Research. ***New York: Oxford University Press, 2003, 364p.***

This is a comprehensive introduction to the ethical issues at stake in the conduct of biomedical research, with extensive use of case examples. Its content parallels the recommendations of the Commission on Research Integrity and deals with ethical issues in the use of animal and humans in research. It includes chapters on intellectual property, authorship, peer review, and conflicts of interest. This guidebook can be a convenient text for short courses or seminars in research ethics.

INTEGRATED CARE

Hebert R, et al. Frail elderly patients: new model for integrated service delivery. ***Canadian Family Physician 2003 August; 49(8): 992-997.***

This paper gives a description of PRISMA (Program of Research to Integrate Services for the Maintenance of Autonomy), an innovative integrated service delivery model designed to improve continuity of care through i) coordination between decision makers and managers of different organizations and services, ii) a single entry point, iii) a case management process, iv) individualized service plans, v) a single assessment instrument based upon functional autonomy, vi) a computerized clinical chart for communicating and client monitoring and vii) a case-mix classification system. An evaluation of the model conducted in two areas in Quebec via a 3-year cohort study indicates that the model results in a lower level of functional decline, reduced risk of institutionalization, decreased caregiver burden, and reduced risk of return to an emergency room after hospital discharge.

Nicole Dubuc, Réjean Hébert et Johanne Desrosiers. Les soins de longue durée aux personnes âgées: choix d'un système clinico-administratif dans le contexte d'un réseau de soins intégrés. ("Long-term care for older persons : choosing a clinical-administrative system within the context of an integrated care system"). ***Canadian Journal on Aging/La Revue canadienne du vieillissement, Vol 23 (1), p. 35-45.***

For the past ten years, in long-term care systems, we have witnessed the accelerated deployment of case-mix management systems. A case-mix is formed by clusters, defined by individual characteristics that explain similar resource use. However, certain questions regarding the development of these systems must be raised. Moreover, none of these systems was developed in the context of an integrated care organization that can track the progress of a dependent elderly person through every kind of care arrangement available – from own home, through intermediate facility, to long-term care institution. This article emphasizes the necessity of being well informed about the features of existing systems, in order to choose or develop the system that best meets the goals of a particular health care system in this context.

OLDER PERSONS IN QUEBEC

Chantal Lefebvre. Un portrait de la santé des Québécois de 65 ans et plus. ("Health Portrait of Quebecers aged 65 and over") Québec : Institut national de santé publique du Québec, 2003, 19 p.

In Quebec in 2003, there were nearly one million people aged 65 or over. In another era, this age could have seemed either fatal or venerable, but it is now a common fact of life, since today, seniors represent over 13% of the population. Who are today's elderly? More importantly, what is their state of health? This portrait of the living conditions and state of health of older persons in Quebec answers these questions.

http://www.inspq.qc.ca/pdf/publications/180_PortraitSantePersonnesAgees.pdf

OPTIMIZING YOUR SEARCHES IN MEDLINE

Nancy L. Wilczynski, R. Brian Haynes, John N. Lavis, Ravi Ramkissoonsingh, Alexandra E. Arnold -Oatley. Optimal search strategies for detecting health services research studies in MEDLINE. ***Canadian Medical Association Journal, Nov. 9, 2004, Vol. 171, no. 10, p. 1179-85.***

Evidence from health services research is currently thinly spread throughout many journals, making it difficult for health services researchers, managers and policy-makers to find research on clinical practice guidelines and the appropriateness, process, outcomes, cost and economics of health care services. The authors undertook to develop and test search terms to retrieve articles on health services research, meeting minimum quality standards, from the MEDLINE database.

The best search strategies have been made available for public use by the US National Library of Medicine.

http://www.cmaj.ca/cgi/reprint/171/10/1179

PUBLICATIONS of SOLIDAGE members

CANADIAN INITIATIVE ON FRAILTY AND AGING

Howard Bergman, François Béland, Sathya Karunananthan, Silvia Hummel, David Hogan, Christina Wolfson for the Canadian Initiative on Frailty and Aging. Développement d'un cadre de travail pour comprendre et étudier la fragilité. ("Development of a framework for understanding and studying frailty") Gérontologie et Société, No. 109, June 2004, p. 15-29.

Under the auspices of the **Canadian Initiative on Frailty and Aging**, **Howard Bergman**, **François Béland**, **Sathya Karunananthan**, **Silvia Hummel**, **David Hogan**, and **Christina Wolfson** have just published the above article in the French-language journal *Gérontologie et Société*, in their special issue on "frailties". They discuss the concept of frailty and indicate that there is still no consensus regarding its definition and characteristics. They outline the objectives of the Canadian Initiative and its first accomplishment, i.e. a systematic review of literature on frailty. This review is currently in progress and will result in the development of a model enabling those concerned to more clearly understand the causes, consequences and trajectories of frailty in older persons.

This special issue on "Frailties" includes the following papers (NOTE: titles unofficially translated for information purposes only):

- Frailty in the elderly : current situation, prospects
- Frailty at the oldest ages: definition and impact on exchange of services
- The impact of frailty on daily life: changes and stability in the activities and well-being of the oldest olds
- The concept of frailty and the effectiveness of the AGGIR assessment procedure
- Resilience and vulnerability: adaptation of these concepts in psycho-gerontology
- The concept of frailty in social and medical-social legislation: "old and feeble" – from protection to the defense of rights
- Public policy and support for frail older people
- Protection of vulnerable adults: why the present law should be reconsidered
- Can older persons weaken the network which supports them?
- Mental images and issues in institutions: are institutions debilitating?

DEMENTIA AND INSTITUTIONALIZATION

R. Hébert, M.-F. Dubois, C. Wolfson, L. Chambers, C. Cohen.

Book chapter entitled *Facteurs associés à l'institutionnalisation à long terme de personnes âgées démentes* ("Factors associated with long-term institutionalization of persons with dementia"), in *Maladie d'Alzheimer, Recherche et Pratique Clinique: Démence Sévère*, Serdi Edition, Paris, 2003.

In Canada, half of those with dementia are institutionalized. The factors linked to institutionalization must be identified not only for the purpose of implementing strategies enabling persons with dementia to remain at home for as long as possible but also to make certain that appropriate measures are taken, at the appropriate time, with respect to placement in an institution. Based on longitudinal data from the Canadian study on health and aging, the authors explore factors related to the institutionalization of subjects with dementia. The significant factors determined as a result of the multivariate survival analysis are: type of dementia, severity of disabilities, caregiver age, caregiver's relationship to the person with dementia, other than spouse or child; and severe caregiver burden. Caregiver burden is also associated with behaviour problems and depression. Appropriate intervention intended to reduce the institutionalization of persons with dementia would involve monitoring caregiver burden and depression, and developing ways to reduce the effects of behaviour problems on caregivers.

CHARTS DATABASE

The SOLIDAGE chart & table database is now available online. This database is a joint initiative of **SOLIDAGE**, the **Canadian Initiative on Frailty and Aging** and the **IUGM library**. It contains over 500 statistical graphs covering the period between 1999 and 2004, on topics such as: frailty, disability, quality of life, risk factors, health care system performance, costs and expenses, long-term care and community dwelling, the demographics of aging, mortality and state of health. The user guide will help you find the graphs you need and incorporate them into PowerPoint.

All the information is online at http://www.solidage.ca/e/docu_ctr.htm.

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It is intended for members of the **McGill – Université de Montréal Solidage Research Group on Integrated Services for Older Persons**, and anyone with an interest in population-based research, integrated health and social services delivery and/or the translation of health services and clinical research results into policy and practice for frail older persons.

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