

AGE AND SEX DO NOT BIAS THE USE OF ANGIOTENSIN-CONVERTING ENZYME INHIBITORS IN ACUTE MYOCARDIAL INFARCTION AND CONGESTIVE HEART FAILURE

To the Editor: Age and sex do not bias the use of angiotensin-converting enzyme (ACE) inhibitors in acute myocardial infarction (AMI) and congestive heart failure (CHF).

For older patients with CHF and AMI, there is ample evidence in the literature for the efficacy of ACE inhibitors in improving long-term survival and decreasing overall mortality from cardiovascular death.¹ Although most research does not exclude older people from the use of ACE inhibitors,^{2,3} there are some studies suggesting that patients aged 70 and older are being denied this form of therapy (particularly in CHF) when no clear contraindications exist.^{4,5} Evidence for the underuse of ACE inhibitors by sex is less clear.⁶⁻⁸ ACE inhibitors offer a myriad of benefits, even in the older population with AMI and CHF.⁹

A study was undertaken to determine whether patients are being denied the use of ACE inhibitors for AMI and CHF alone or in combination because of age and sex bias, because data analyzed earlier by the research team found that, in clinical practice, older patients were less likely to receive the most-effective therapy after AMI and less likely to be referred for specialist investigations.⁹

The setting was a district general hospital in London, United Kingdom. Participants included all patients admitted between April 1, 1996, and March 31, 1997, with a diagnosis of AMI or CHF alone or in combination in whom no contraindications existed for ACE inhibitor use.¹⁰

After exclusion, 669 such patients were identified (male:female = 355:314) and followed for 1 year, until March 31, 1998. Data were collected and analyzed retrospectively from patients' medical notes using *International Classification of Diseases* coding. A medical practitioner then validated the data. Good concordance was obtained at 80%. Statistical analysis used chi-square and chi-square trend tests to compare discrete variables. Interactions between potentially predictive variables were tested using logistic regression analysis.

Of the 669 patients, 208 had CHF (31%), 131 had AMI (20%), and 330 had AMI with CHF (49%). Of the 208 patients with CHF, 122 (58.7%) received ACE inhibitors (65.1% <75 and 54.4% ≥75; 61.6% male and 56% female). Of the 131 patients with AMI, 53 (40.5%) received an ACE inhibitor (40.7% <75 and 40% ≥75; 37.0% male and 46% female). Three hundred thirty patients had a combination of AMI and CHF, of which 169 (51.2%) received an ACE inhibitor (51.2% <75 and 50.3% ≥75, 50.3% male and 52.3% female) (Table 1).

Patients aged 75 and older were just as likely as their younger counterparts to receive an ACE inhibitor for CHF or AMI alone or in combination. Male patients were as likely as female patients to receive ACE inhibitors.

Table 1. Use of Angiotensin-Converting Enzyme (ACE) Inhibitors in Acute Myocardial Infarction (AMI) and Congestive Heart Failure (CHF) by Age and Sex

Condition	Age		Sex	
	<75	≥75	Male	Female
CHF	83 (65.1)	125 (54.4)	99 (61.0)	109 (56.0)
AMI	91 (40.7)	40 (40.0)	81 (37.0)	50 (46.0)
AMI and CHF	169 (52.1)	161 (50.3)	175 (50.3)	155 (52.3)

Patients were more likely to receive an ACE inhibitor if they had a combination of AMI and CHF (51.2%) than if they had AMI alone (40.5%), regardless of age or sex ($P = .03$), but ACE inhibitors were generally underused for all conditions (fewer than half of the patients), particularly AMI (40.5%). Although ACE inhibitors were underused in this study, particularly with AMI, no age or sex discrimination was demonstrated, as also found in some later studies.⁶⁻⁸

This finding is in contrast to the results obtained by Ganz et al.,⁹ who noted older age as a significant independent negative correlate of use of ACE inhibitors in CHF and data from Haveranek et al.,⁴ who reported not only underuse in older patients, but also increased mortality as a result of this policy.

With the availability of evidence for ACE inhibitor use in older people, it is surprising that only 40% to 60% of patients who could benefit from ACE inhibitors received treatment in this study.

The results of this study possibly reflects clinical practice in the United Kingdom some 4 to 5 years ago but certainly indicates the need to undertake more investigative work to demonstrate whether this is truly the case and if so whether practice has improved since. In addition, a comparative study between the United States and the United Kingdom of the use of ACE inhibitors in the older population with AMI and CHF at the time of this study and currently should prove interesting material, because recent studies suggest that there could be room for improvement in the care of older people in general.¹¹

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DECREASE OF FUNCTIONAL OR COGNITIVE CAPACITY EXPLAINS THE LACK OF EYE EXAMINATION IN VISUALLY IMPAIRED OLDER PERSONS

To the Editor: The decline of visual function with age is well known.^{1,2} Vision loss has been ranked behind arthritis and heart disease as the third-most-common chronic con-

dition that forces older persons to require assistance with activities of daily living.³ It is associated with depressive mood;⁴ functional decline;⁵ and increased risk of falls, hip fracture, and mortality. Decreased vision also appears to increase the risk of becoming institutionalized.⁶ As with many other health problems encountered in older people, visual impairment is often undiagnosed and untreated.^{1,7,8} Recently, it was reported that adequate implementation of surgery to treat cataract could reduce visual impairment by one-third² and that uncorrected refractive error is the most common cause of bilateral visual impairment across all decades of life, but especially in those aged 80 and older.⁹

The purpose of this study was to ascertain reasons for the lack of eye examination in the visually impaired older population and to obtain estimates of how many of those with poor vision have been helped with cataract surgery or with new corrected eyeglasses.

METHODS

This study is a part of the population-based Kuopio 75+ study. The design of that study has been previously reported.¹⁰ This study group consisted of 518 persons. They all had reliable information about visual acuity measured with screening methods.

The visual examination consisted of an assessment of binocular visual acuity for distance (Snellen chart with E-letters) and near (reading charts designed by the Finnish Center for Visually Impaired) vision, corrected with the patient's own eyeglasses. Visual impairment was registered if the binocular visual acuity was less than 20/60 (logMAR +0.5). The primary research was conducted in 1998. At the beginning of 2002, patient documents in the local university hospital and in the offices of local ophthalmologists were reviewed. The investigations verified whether an ophthalmologist had examined these visually impaired subjects during the follow-up time and whether cataract surgery or provision of new eyeglasses had corrected their visual acuity.

Physical, psychological, and cognitive functions and functional hearing acuity were also measured during the examination of these study subjects. Activities of daily living (ADLs) were evaluated using the Barthel index and mood using the Finnish translation of the Zung Depression Status Inventory. Cognitive function was screened using the Finnish translation of the Mini-Mental State Examination (MMSE).

RESULTS

Visual impairment was found in 122 (24%, 95% confidence interval (CI) = 20–27) of the 518 study subjects. An ophthalmologist had examined 59 (48%) of them during the follow-up period; 17 (29%) of these had received new eyeglasses, and 13 (22%) had undergone cataract surgery. With these actions, their visual acuity had improved to the level of “no visual impairment.”

Table 1 shows statistically significant differences between the examined and nonexamined groups in the number of institutionalized individuals, median of the Barthel index, and MMSE score of 24 points or less. Sex, age, hearing impairment, and possible depressive

Table 1. Characteristics of Visually Impaired Subjects Who Were Examined or Not Examined by an Ophthalmologist

Characteristic	Examined	Not Examined	P-value
Female, n (%)	45 (76)	48 (76)	.99
Age, mean \pm standard deviation	83 \pm 5	84 \pm 5	.11
Institutionalized, n (%)	4 (7)	21 (33)	<.001
Barthel Index, median (interquartile range)*	95 (90–100)	75 (55–95)	<.001
Hearing impairment, n (%)	19 (32)	17 (27)	.53
Mini-Mental State Examination \leq 24, (%)	26 (44)	49 (78)	<.001
Zung depression scale \geq 40, (%)	32 (55)	39 (67)	.18

*Maximum value indicates independent in all activities.

mood did not explain the lack of examination of visual impairment.

The significant univariate predictive effect for the lack of examination for visual impairment was institutional care (odds ratio (OR) = 6.87, 95% CI = 2.19–21.54), Barthel index (OR = 0.96, 95% CI = 0.94–0.98), and MMSE \leq 24 (OR = 4.44, 95% CI = 2.02–9.74). The forward stepwise logistic regression analysis entered the Barthel index (OR = 0.96, 95% CI = 0.94–0.98) and MMSE \leq 24 (OR = 2.88, 95% CI = 1.19–6.96).

CONCLUSIONS

Impairment of vision is common in this age group. An ophthalmologist had examined 48% of visually impaired subjects during the follow-up time, and half of these achieved better visual acuity from cataract operation or provision of new eyeglasses. Deteriorated cognitive function and impairment in ADL functions were the strongest factors associated with lack of eye examination for visual impairment.

Many of these visually impaired persons live in institutional care. To promote examination of visual problems, the staff of these institutions should understand the importance of early diagnoses of visual problems and the possibility of helping visually impaired older people. In addition, physicians should be aware that older persons who need assistance in ADL functions or who have dementia might also have a hidden visual impairment.

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WHAT IS A GERIATRIC SYNDROME ANYWAY?

To the Editor: The term “geriatric syndrome” is a commonly used but ill-defined concept among internists and geriatricians alike. Many conditions have been called “geriatric syndromes” including delirium,¹ dementia,¹ depression,² dizziness,³ emesis,⁴ falls,¹ gait disorders,¹ hearing loss,¹ insomnia,¹ urinary incontinence,¹ language disorders,¹ functional dependence,⁵ lower extremity problems,⁶ oral and dental problems,⁶ malnutrition,¹ osteoporosis,¹ pain,¹ pressure ulcers,¹ silent angina pectoris,⁷ sexual dysfunction,⁶ syncope,⁶ and vision loss.¹ This leaves the impression that any commonly encountered condition in older persons is a geriatric syndrome. Can this be possible? What specifically is a geriatric syndrome anyway?

THE TRADITIONAL USE OF SYNDROME

The word syndrome was apparently first used in an English translation of Galen about 1541.⁸ Derived from the Greek roots “syn” (meaning “together”) and “dromos”

(meaning “a running”), this term generally refers to “a concurrence or running together of constant patterns of abnormal signs or symptoms.”⁸ The term syndrome “has as its philosophic basis not specific disease factors, but a chain of physiologic processes, the interruption of which at any point produces the same ultimate impairment of body function.”⁹ Cushing’s Syndrome is an example of a traditional medical syndrome wherein disruption of a single physiological process (excessive cortisol secretion) results in multiple common phenomenologies (Moon facies, truncal obesity, proximal muscle weakness, etc.; see Figure 1). This implies that, by identifying and correcting a single disruption in the normal chain of physiological events (by removing an adrenocorticotrophic hormone-secreting tumor, for example), one can treat the entire syndrome.

THE GERIATRIC SYNDROME

One early definition of “geriatric syndromes” is conditions “experienced by older—particularly frail—persons, [that] occur intermittently rather than either continuously or as single episodes, may be triggered by acute insults, and often are linked to subsequent functional decline.”¹⁰ More recently, geriatric syndromes have been viewed as conditions in which “symptoms . . . are assumed to result not solely from discrete diseases but also from accumulated impairments in multiple systems”³ and develop when

the accumulated effect of these impairments in multiple domains compromise compensatory ability.⁵ Both definitions are a significant departure from the traditional use of syndrome because the outcome is a single phenomenology rather than a spectrum of symptoms and signs and results from numerous rather than a single disruption. In geriatric syndromes, it is multiple abnormalities that “run together” to cause a single phenomenology. For example, in delirium, the cumulative effects of multiple contributors (impaired cognition, severe illness, old age, etc.) result in the delirium phenomenology.

Unfortunately, the discrepancy between traditional and geriatric medical usages of syndrome has lead some to conclude that a geriatric syndrome is “a usual concomitant of aging; that there may be no specific disease to identify, but instead undefinable erosions of mood or function.”¹¹ This leads to the unfortunate sense of a frustrating condition with no clear approach and no likelihood of improvement.

POSSIBLE SOLUTIONS

One resolution of this problem would be to create new terminology. It is clear that conditions associated with characteristics in multiple domains (cardiovascular, neurological, sensory, psychological, and medication related) do not fit the traditional definition of a syndrome.¹² Because multiple factors precipitate many health problems of older persons, the Greek root *koimoneo* (meaning to do in common with, share, take part in a thing with another) seems appropriate. Thus, the term “geriatric synkoinon” could replace geriatric syndrome. Although more accurate, introducing new language is fraught with difficulty, because physicians are unlikely to change their terminology easily.

Another approach would be to create a greater appreciation of the specific meaning of syndrome when applied in a geriatric medicine context. This requires precision of thought and persistence by teachers and practitioners of geriatric medicine. Specifically, I would propose that conditions are geriatric syndromes if they are multifactorial, occur primarily in older persons, and result from an interaction between identifiable patient-specific impairments and identifiable situation-specific stressors, and interventions directed toward ameliorating the contributing factors result in a reduction in the incidence or severity of the condition in question. Delirium, falls, and incontinence could be accepted as geriatric syndromes by this definition. Other condition might qualify as the result of more research. The notion that such geriatric conditions arise from “undefinable erosions of mood or function” is increasingly untenable, but it is the job of practitioners and researchers in the care of older persons to demonstrate to the rest of the medical community why this is so.

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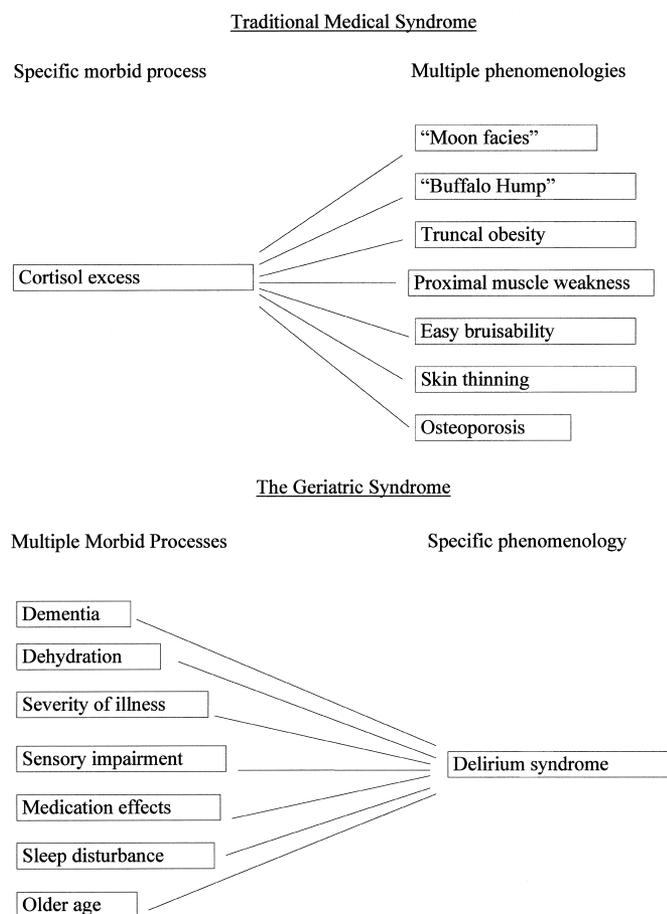


Figure 1. Comparison between traditional medical syndromes and geriatric syndromes.

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DANCE/MOVEMENT THERAPEUTIC METHODS IN MANAGEMENT OF DEMENTIA

To the Editor: Dance and rhythmic movement has been used in expressing and modifying emotions for centuries. Dance/Movement Therapy (DMT) as a form of art therapy has been used in the Western world since the early 1950s.¹⁻³ Because DMT combines music, light exercise, and sensory stimulation, it would seem to fulfill the American Academy of Neurology's recommendations for non-pharmacological treatment of dementia.⁴ We developed DMT procedures applicable to dementia nursing homes, where staff does not have formal dance/movement therapist training and evaluated whether weekly DMT sessions over a 4-month period would improve the verbal and cognitive level or alleviate the behavioral symptoms of patients with dementia.

Four patients with moderate to severe Alzheimer's disease formed the study group. All patients were receiving cholinesterase-inhibitor treatment and antipsychotic or antidepressant medication, which remained stable during the intervention. The dance/movement group met once a week and was open to other nursing home inhabitants as well. There were 16 sessions that lasted for 30 to 45 minutes each. The sessions had the same structure each time: warm-up, theme development, and closure. A registered dance therapist (BH) trained the staff and supervised the process. The patients and their spouses signed an informed consent to participate in the study.

Overall cognitive level was assessed using the Mini-Mental State Examination (MMSE)⁵ a week before, during (at Weeks 6 and 15), and 4 weeks after the intervention. Behavioral symptoms were assessed using the Neuropsychiatric Inventory⁶ at baseline, Week 12, and 4 weeks after the end of the intervention. A picture-description task was used to elicit comparable samples of narrative speech. Assessments were performed twice a week before the beginning of the intervention (double-baseline), during the intervention (at Weeks 1, 6, 10, and 15), and 4 weeks after the end of the intervention. During the intervention, verbal output was measured both before and after each session. Five different pictures were used. The Cookie Theft picture from the Boston Diagnostic Aphasia Test Battery⁷ was presented in the first (the first baseline) and last (follow-up)

test sessions. The other four pictures were prints of colorful paintings with approximately the same number of details. Samples were videotaped, transcribed, and scored using the number of information units (IUs) as a measure of narrative speech.^{8,9}

The dance/movement group seemed to have a favorable effect on language abilities. The subjects produced on an average more IUs in narrative speech immediately after a group session than before it, although the difference did not reach statistical significance (all four sessions combined, Sign test $P = .134$). There was individual variability in the increase of IUs, and the immediate effect seemed to be shrinking toward the end of the study period. The subjects also produced more IUs at the last part of the intervention period than at baseline. The number of IUs still remained elevated at the follow-up (Figure 1). The difference between the three measures reached statistical significance (Friedman's analysis of variance $P = .018$).

The overall cognitive level of the Alzheimer's patients remained unchanged (MMSE scores mostly within two points). The fact that clear progression was not seen during the 5-month study period can be interpreted positively, given the nature of the disease. The behavioral symptoms also remained relatively stable during the study period. We had anticipated a decrease in apathy or depression, but, in general, such an effect was not found. The staff observed an increase in the willingness to interact socially.

This pilot study was able to demonstrate the applicability of DMT in a nursing home setting; the sessions were successfully incorporated into the nursing home schedule, and the staff was able to lead the group with monthly supervision. The results concerning the effects of DMT on dementia symptoms are only preliminary. Although a double-baseline paradigm was used, small group size hinders any meaningful statistical comparison and makes generalizations difficult. We still believe that at least some patients with dementia benefit from DMT intervention. Cognitive performance has traditionally not been the focus of DMT research, and therefore it has seldom been measured. In one study with older patients with brain trauma or nonprogressing stroke, cognitive performance was better in a DMT experimental group than in controls.² This

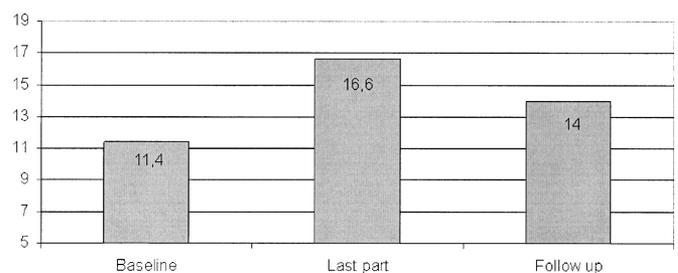


Figure 1. The effect of a dance/movement group intervention on the mean number of information units measured from narrative speech. Baseline = speech samples recorded on two different days before the beginning of the intervention; Last part = speech samples recorded immediately before group sessions at Weeks 10 and 15; Follow up = speech sample recorded 4 weeks after the end of the intervention. The difference between the three repeated measures was statistically significant.

indicates that, under favorable circumstances, DMT may be beneficial to higher cortical functions.

Because this is a pilot study, the main interest was in the applicability of this method. A larger and controlled study on the effects of DMT in dementia management will be launched next.

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POSSIBLE MODEL FOR SUCCESSFUL CARE: BURDEN OF CAREGIVERS OF CENTENARIANS

To the Editor: By 2015, older people will account for 25% of the Japanese population. Aging of the population is not

limited to Japan but is occurring in many other countries. Although long life is an age-old desire, modern society is realizing that living in good health is essential if longevity is to be fulfilled. The change in emphasis from living for living's sake to a search for a better quality of life has become an important consideration in the administration of health care. As a representative model for successful aging, people who celebrated their 100th birthdays were interviewed to ascertain what it was like to survive serious illnesses and live on in relatively good health.¹

These centenarians have been studied in terms of basic medical care, genetic background, psychological make-up, and nutrition to determine which factors favor a long, healthy life. Although current research has examined the contributions of individual factors, few reports have examined the total care system. Even when a social care system is able to oversee the day-to-day responsibilities of caring for older people, the main pillar is still the family.² With the burden placed on caregivers receiving more attention, the Japanese government began to issue Care Insurance in 2000. Because centenarians' families have had to provide moderate levels of care, their pattern of care would be a possible model of successful care.

The authors studied 75 centenarians and their caregivers who lived in the Tokyo metropolitan area. Thirty-one caregivers who cared for people between the ages of 70 and 90 (average \pm standard deviation = 79 ± 7) were chosen as a control group. A questionnaire inquiring about the primary caregiver was mailed to each subject. Questions included age, self-rated health, illness, level of fatigue of the caregivers, relationship with the care recipient, and care recipients' activities of daily living (ADLs). ADL were analyzed using the Barthel index. To measure the level of caregiver fatigue, the modified Accumulated Fatigue Questionnaire (m-AF Q) issued by the Institute for Science of Labor was used.³ The m-AF Q includes scales for anxiety, depression, decreased vitality, irritation, daily fatigue, chronic fatigue, and physical imbalance. The level of fatigue was correlated with age, self-rated health, caregivers' health, relationship with care recipient, and care recipient's ADLs.

The caregivers consisted of daughters-in-law (44%), daughters (32%), sons (10.7%), spouses (2.7%), and other family members (10.7%). The distribution in the control group was similar. Almost three-quarters (72.3%) of caregivers of centenarians and 35.5% of control subjects were ill. Fifty percent of both groups self-rated their health as good to moderate. The Barthel index of centenarians was lower than that of controls (48.5 vs 76.3), which indicates that the centenarians had more trouble with ADLs than those in the control group. However, caregivers of centenarians had lower m-AF Q scores than those of controls except for daily fatigue (see Figure 1). Ill caregivers had higher m-AF Q scores, especially in anxiety and chronic fatigue, than healthy caregivers. Self-rated health became lower as m-AF Q scores worsened. ADLs of centenarians did not correlate with the m-AF Q, except in chronic fatigue.

It is impressive and interesting that family members who care for centenarians had a lower accumulated fatigue level, in spite of worse ADL abilities of centenarians and despite being older themselves. Furthermore, more than

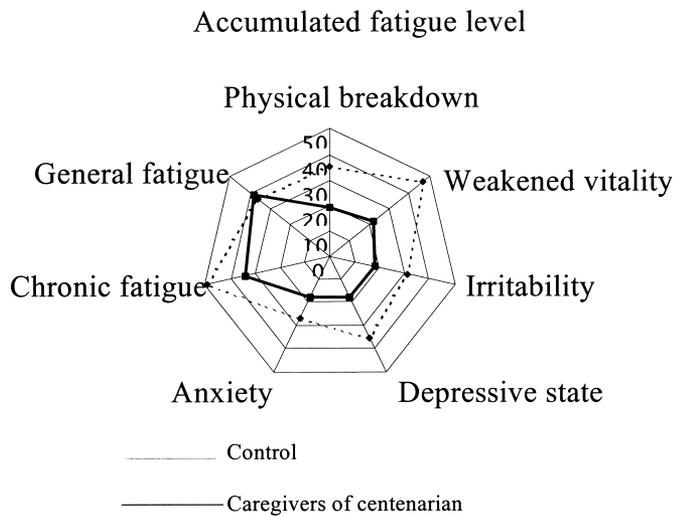


Figure 1. Anxiety: “have something to worry about, feel uneasy for some reason.” Depressive state: “feel depressed, don’t feel like doing what I like.” Irritability: “not content with anything, feel nervous without knowing why.” Weakened vitality: “lack patience, lazy to get about.” Physical breakdown: “have dull appetite, get thinner than before.” General fatigue: “feel tired in the whole body, my eyes feel strained.” Chronic fatigue: “often feel tired when I get up in the morning, anxious about my job.”

half of the caregivers rated their health as very good to good. Because this self-rating reflects physical and psychological health, this finding suggests that the caregivers perceive their work as worthwhile and satisfying. In Japan, it is customary that the daughter-in-law becomes the caregiver for older family members, which can be psychologically and physically burdensome and exhausting. However, in the centenarian family, such well-defined roles do not seem to exist, and care appears to reflect genuine concern and caring. From these results, situations of centenarian care might be a possible model for successful care.

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INTERLEUKIN-6-174 G/C PROMOTER GENE POLYMORPHISM C ALLELE REDUCES ALZHEIMER’S DISEASE RISK

To the Editor: Alzheimer’s disease (AD) pathophysiology encompasses a variety of neurodegenerative, inflammatory, metabolic, and genetic aspects. The cytokine interleukin-6 (IL-6) is reported to play a role in AD pathogenesis^{1–3} and neurodegeneration.^{3–5}

In the IL-6 gene, a G/C (genotype) polymorphism in the promoter at position –174 (prom) is associated with altered IL-6 transcription rates.⁶ A variable number of tandem repeats (vntr) polymorphism in the IL-6 gene has been reported to be protective² in AD. Haplotyping vntr and prom polymorphism showed a strong linkage disequilibrium and demonstrated an interaction that modifies AD risk in the presence of the prom C allele,¹ but, for the prom polymorphism alone, no association was found.¹ We examined whether the prom polymorphism has protective properties in carriers versus noncarriers of the C allele in our population. The apolipoprotein E (ApoE) ε4 allele is a known genetic risk factor in AD. Therefore, a possible interaction with the IL-6 prom polymorphism was examined as well.

We studied the IL-6 prom polymorphism and the ApoE genotype in German Caucasian AD patients (n = 101, 40 male, 61 female; mean age ± standard deviation = 72.5 ± 9.6) diagnosed according to National Institute of Neurological and Communicative Diseases and Stroke—Alzheimer’s Disease and Related Disorders Association criteria.⁷ Healthy individuals (without cognitive impairment (n = 133, 64 male, 67 female; mean age = 48.9 ± 12.6) were included in a population-based sample as controls. The local ethical committee approved the study protocol. Informed consent was obtained from all subjects.

IL-6 prom and ApoE genotypes were determined as described previously.¹ Genotype and allele frequencies were compared between cases and controls using chi-square and Fisher exact tests. The odds ratio (OR) for AD according to IL-6 prom polymorphism was calculated based on presence of the prom C allele and allele frequencies using a logistic regression model.

Patients and controls were sex matched; groups differed significantly in age distribution ($P < .01$). IL-6 prom genotypes and allele frequencies are shown in Table 1. Under the hypothesis that the C allele is protective, C allele frequency (CC and GC vs GG) of AD patients and controls was compared. A higher frequency of the C allele was found in the control group (Fisher exact test,

Table 1. Interleukin (IL)-6-174 Promoter Gene Polymorphism Allele Frequencies in Patients with Alzheimer's Disease and Healthy Controls

Subjects	IL-6 G/C Genotypes			Allele Frequencies	
	CC	GC	GG	C	G
Overall (N = 234)	0.13	0.50	0.37	0.38	0.62
Alzheimer's disease (n = 101)	0.10	0.46	0.44	0.36	0.64
Healthy controls (n = 133)	0.15	0.53	0.32	0.41	0.59

one-tailed significance $P = .04$). The OR was 0.6 (90% confidence interval = 0.38–0.94, $P = .03$). Unadjusted data (CC vs GC vs GG) failed to reveal an association between IL-6 prom genotype and AD. No interaction between ApoE and IL-6 prom genotypes could be detected (Chi squared = 1.8, $p = 0.23$).

We report a statistically significant risk-reducing association of the C allele of the IL-6 prom polymorphism in AD. An interaction with the IL-6 vntr polymorphism has been described,¹ but the association with the IL-6 prom polymorphism alone had not previously been detected.^{2,8} Therefore, a risk-reducing role of the prom C allele in carriers versus noncarriers has not yet been considered. The fact that the C allele is associated with lower plasma levels of IL-6 in healthy individuals⁶ supports these retrospective data of a relative risk reduction (OR = 0.7) and the protective role of the prom C allele in AD.

The control group was younger than the AD group, but a risk-modifying effect in an age-matched control group has been reported.¹ Therefore, it can be assumed that the results found in our sample are not merely due to an age-related effect.

These data suggest that the presence of the C allele of the prom polymorphism in the IL-6 gene, even in heterozygous carriers, reduces AD risk.

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DEEP VEIN THROMBOSIS IN OLDER PATIENTS

To the Editor: I read with great interest the review¹ about problems and an approach to diagnosis of deep vein thrombosis (DVT) in the March 2002 issue of the *Journal of the American Geriatrics Society*.

Last year, we published a study with a similar subject.² We screened about 150 patients that were consecutively admitted to our geriatrics clinic, looking for symptoms and signs of DVT of the leg. Using ultrasound examination during the first 24 hours after admittance to our department, we diagnosed 35 new cases of DVT in 30 patients. Despite the fact that an isolated swollen leg is frequent, for example, after hip surgery or stroke, none of the patients with the new diagnosis of DVT showed clinical signs of thrombosis or pulmonary embolism. We were able to identify length of stay in hospital, female sex, and higher heart rate in the admission electrocardiogram as independent variables that were significantly more frequently associated with DVT. We use them in our clinic as risk indicators to decide whether further diagnostic steps are necessary.

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LYME NEUROBORRELIOSIS REVEALED AS A NORMAL PRESSURE HYDROCEPHALUS: A CAUSE OF REVERSIBLE DEMENTIA

To the Editor: Neurological symptoms of Lyme disease may range from aseptic meningitis to clinical features sug-

gesting dementia.¹ When cognitive symptoms are predominant,² the diagnosis of Lyme disease may be difficult because they resemble normal-pressure hydrocephalus (NPH).^{3,4} We report one case of reversible dementia due to these two coexisting diseases.

A 76-year-old man without any past medical history was admitted for weight loss, falls, and cognitive decline for 6 months. Examination revealed ataxia, urge incontinence, and acquired worsening memory problems. Physical neurological findings were normal, whereas cognitive assessment showed amnesia for recent events with spatiotemporal disorientation. The patient scored 15 of 30 on the Mini-Mental State Examination (MMSE) and 98 of 144 on the Mattis scale.

Brain magnetic resonance imaging (MRI) showed ventricular dilatation suggesting NPH. Cerebrospinal fluid (CSF) leukocytes were increased (250/mm³), including 60% lymphocytes; protein was 3,000 mg/dL. The patient did not improve after a spinal tap removal of 50 mL of CSF. Direct examination and cultures for usual bacteria in the blood and CSF were negative. Polymerase chain reaction studies of CSF were negative for cytomegalovirus, varicella zoster, Epstein Barr, and herpes simplex viruses. Serological tests for syphilis were negative. Antibodies to *Borrelia burgdorferi* (enzyme-linked immunosorbent assay (Elisa) test) in the blood (immunoglobulin G (IgG) titer of 158 μ i/L) and in the CSF were positive (Enzygnost Borreliosis, Behring laboratories). We confirmed intrathecal synthesis of antibodies using intrathecal antibody index as suggested in the literature.^{4,5} Thus, the ratio (Elisa IgG in CSF/Elisa IgG in serum)/(total IgG in CSF/total IgG in serum) was 19.7 (normal <1.5), suggesting an intrathecal production of antibodies. His Western blot serum analysis (5 bands) suggested a recent infection.

After 4 weeks of ceftriaxone (2 g/d), clinical reassessment showed a normal gait and continence. The patient had no significant cognitive impairment after being assessed on new neuropsychological tests. His CSF was normal 8 weeks later, thus treatment was withdrawn. Six months later, he was still free of symptoms without any improvement of brain MRI.

The patients' cognitive impairment led to complementary examinations, especially brain imaging and CSF analysis. These investigations revealed two coexisting diseases: imaging results of NPH and neuroborreliosis. Because dementia can be reversible in certain cases, complementary exploratory tests (e.g., blood test, brain imaging) are recommended at the onset of the disease. Both NPH and neuroborreliosis have been listed among these reversible causes. NPH should be suspected when incontinence, gait disturbances, and cognitive decline are associated. In neuroborreliosis, cognitive decline is frequent and usually improves dramatically with antibiotics.²

This patient had significant aseptic meningitis and specific antibody titers against *Borrelia burgdorferi* in the blood and CSF, confirming Lyme disease. Moreover, the ratios of antibodies between CSF and blood and serum Western blot studies suggested an active neurological infectious process.

Coexisting diseases in dementia such as NPH in association with hyperparathyroidism³ or Lyme neuroborreliosis⁴ have been previously described. In our opinion, this pa-

tient's cognitive symptoms were most likely due to Lyme disease. He developed progressive and worsening dementia associated with a sudden altered general state. He completely and dramatically recovered after a regimen of antibiotics and CSF normalization, although NPH brain imaging results were unchanged. The clinical course of patients with neurological involvement associated with Lyme disease treated with antibiotics could be reversible despite MRI results to the contrary. In these patients, MRI might reveal severe persistent pictures suggesting hydrocephalus (as in our case) even though the patient has completely recovered.¹

In the presence of clinical or radiological signs suggesting NPH, an examination of the CSF should be performed, including specific investigation for Lyme disease.

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THE RELATIONSHIP BETWEEN HEALTH AND TYPE OF FRACTURE IN PERSONS AGED 65 AND OLDER

To the Editor: The incidence of fall-related fractures in persons aged 65 and over is high,¹⁻³ and the effect on individuals and financial resources is substantial.^{4,5} Prevention must target those having the highest risk of serious falls, primarily frail older persons.⁶ Advancing frailty reduces the level and intensity of everyday activities,⁷ which might change the circumstances of falls and the type of fracture sustained. If so, patients with different fractures reflecting varying states of health might need different preventive measures.

An observational cross-sectional survey was performed to study case management and functional outcome in patients aged 65 and older with fall-related fractures in Heidelberg, Germany, including all patients presenting at three trauma departments between July 1, 1999, and June 30, 2000. Patients were identified during regular visits in the departments from surgical records and x-ray reports. After informed consent was obtained, the patients or their caregivers were asked about prefracture sociodemographic status, comorbidities, and functional abilities. Cognition was assessed using the Abbreviated Mental Test (AMT).⁸

Table 1. Sociodemographics, Competence, and Fall History in Patients with Different Fall-Related Fractures

Characteristic	Total			P-value		
	PFF (n = 331)	PHF (n = 78)	DRF (n = 143)	PFF vs PHF	PFF vs DRF	PHF vs DRF
Age	81.5	79.4	75.1	.024	<.001	<.001
Nursing home residents, %	23.8	13.0	7.1	.038	<.001	.165
Cognitive impairment (AMT ≤7), %	42.2	21.4	20.8	.001	.004	.938
Use of walking aid, %	51.1	41.3	24.2	.037	<.001	.030
Independent in IADL domains, %	30.8	51.3	68.8	.002	<.001	.045
Repeated falls, %	58.4	50.0	41.9	.192	.002	.270
Fall outside, %	19.8	47.1	43.5	<.001	<.001	.627
Fall during IADL activity, %	25.5	61.8	62.1	<.001	<.001	.921

PFF = proximal femoral fracture; PHF = proximal humeral fracture; DRF = distal radial fracture; AMT = Abbreviated Mental Test (range 0–10 points, normal range 8–10); IADL = instrumental activity of daily living.

If patients or caregivers were able to give unequivocal details, a fall history was ascertained, including previous falls (repeated falls defined as >2 falls during the last year), site of fall (outside/inside), and activity in which the patient was engaged when the fall occurred (activities of daily living (ADLs)/instrumental activities of daily living (IADLs)^{9,10}). Differences between patients with different fractures were tested using chi-square or Fisher exact tests for dichotomous variables and *t* tests for continuous variables (statistically significant when $P < .05$).

Five hundred fifty-two patients were included (84.1% female; mean age \pm standard deviation 79.5 ± 7.71); 331 had proximal femoral fractures (PFF), 143 distal radial fractures (DRF), and 78 proximal humeral fractures (PHF). Cognition was assessed in 421 patients (103 outpatients had no assessment, 21 refused, 7 died before assessment). A reliable fall history was ascertained in 463 patients concerning place of fall and in 431 patients concerning activity when falling (missing data were patients with cognitive impairment who fell unobserved). The results are shown in Table 1. Patients with DRF were younger than those with PFF (75.1 vs 81.5; $P < .001$), less cognitively impaired (AMT score = 7 20.8% vs 42.2%; $P = .004$), less likely to be living in a nursing home (7.1% vs 23.8%; $P < .001$), and less dependent (68.8% vs 30.8% independent in IADLs; $P < .001$). Patients with DRF also used fewer walking aids (24.2% vs 51.1%; $P < .001$) and were more likely to fall outside (43.5% vs 19.8%; $P < .001$) and during IADLs (62.1% vs 25.5%; $P < .001$). All differences remained significant when comparing patients with PHF with those with PFF. There were no differences between patients with PHF and those with DRF, except that the latter were younger (75.1 vs 79.4; $P < .001$), less dependent (68.8% vs 51.3% independent in IADLs; $P = .045$), and less likely to use a walking aid (24.2% vs 41.3%; $P = .011$). In addition, 58.4% with PFF, 50.0% with PHF, and 41.9% with DRF were repeated fallers ($P = .002$ for femoral vs radial fracture).

Data suggest that differences in state of health might change the circumstances of falls and result in different types of fractures sustained. Functional impairment was common in hip fracture patients, whereas patients with arm fractures had higher levels of competence. Most people at risk of DRF were able to participate in high-

intensity interventions outdoors, whereas persons at risk of PFF had a stronger need for home-based exercise focusing on ADL domains. These findings may be important for prevention, which may need to be modified to an individual's functional ability. Because we had one hip fracture in 25 nursing home residents versus one hip fracture in 167 people living at home, nursing homes could provide the most effective hip fracture prevention. We missed patients treated in primary care alone; thus, only the results concerning hip fracture patients are likely to be representative (incidence rate per 1,000 aged 65 and older was 7.8 per year). However, patients with arm fractures treated in primary care alone probably have better states of health than those transferred to a hospital, which would fit into our hypothesis.

Although evidence that balance and strength training can prevent falls is available,^{11–13} there are still many questions concerning adequacy, acceptance, and efficacy, particularly in preventing fractures. Targeting intervention may increase compliance, maximize effectiveness, and therefore better meet the needs of different subgroups of frail older people. With a substantial number of the patients being repeated fallers, the chance exists to identify persons at high risk of fracture in time to instigate preventative measures.

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SATISFACTION WITH PRIMARY CARE PROVIDERS OF OLDER ADULTS LIVING IN SENIOR HOUSING

To the Editor: The recent development of assisted living and congregate housing facilities with on-site medical staff and recent reports on the favorable effects of home visits by medical providers on managing medications,¹ thereby preventing nursing home admission and functional decline,^{2,3} raises the question of whether older adults living in congregate housing would be willing to change providers to access on-site care. To address this issue, a telephone survey of older adults living in two congregate housing sites was conducted to determine whether access to care was an important determinant of patients' satisfaction with their primary care physician (PCP) and the extent to which access and satisfaction were related to patient's willingness to change PCP.

The telephone survey items addressing satisfaction with specific aspects of the patient-provider relationship were adapted from the Oregon Health Plan's Consumer Satisfaction Survey.⁴ PCP satisfaction item responses were captured with a Likert response scale (strongly agree, agree, disagree, strongly disagree). Responses were collapsed into "strongly agree" and "other" groups for the analyses reported here. Participants were also asked, "How satisfied

are you with your primary care doctor?" and asked to choose "very satisfied," "satisfied," "dissatisfied," or "very dissatisfied." Responses were collapsed into "very satisfied" and "other" responses, and this measure serves as the central dependent variable for this report. Participants were asked whether they had "considered switching to a different doctor," and a yes/no response elicited. If they responded "yes," they were asked, "Do you think that you would switch if given the chance?" Responses to this probe were "probably not," "maybe," and "definitely." For this analysis, we identified subjects who might or definitely would switch PCP by grouping the "maybe" and "definitely" responses together and grouped the "probably not" and "no" responses together as patients not considering switching PCP. "Considering switching PCP" was a secondary dependent variable for this report. Collapsing responses across categories was necessary due to extreme skew in response frequencies. The Hebrew Rehabilitation Center for Aged Institutional Review Board approved the study.

Of the 384 residents identified as potential participants in this study, 235 completed interviews. Respondents and nonrespondents did not differ in terms of age, sex, or Medicare eligibility. Respondents' mean age \pm standard deviation was 81 ± 6 . Participants were predominantly women (80%); all participants were white. Sixty-eight percent of participants were very satisfied with their PCP, 28% were satisfied, and 4% were dissatisfied or very dissatisfied with their PCP. Sixty-seven percent had been seeing their PCP for 5 or more years.

The items used to assess participants' satisfaction with their PCP and association with overall satisfaction are presented in Table 1. The first five items assess patients' ratings of the accessibility of their PCP. None of these items was significantly associated with global ratings of satisfaction. The 13 remaining items were significantly and positively related to overall satisfaction. Effects were strongest for item #15, "My PCP cares about my well being"; #17, "My PCP gives me a sense of security about my health"; and #9, "My PCP follows through on my care by telling me about test results or checking on how well I'm doing."

Despite high levels of satisfaction overall, 12% of older patients had considered switching PCPs and indicated that they might or definitely would switch PCPs if given the chance. Patient's ratings of overall satisfaction were strongly related to reports of considering switching PCP. Patients who did not indicate that they were "very satisfied" with their PCP were about five times more likely to report having considered switching PCP (odds ratio = 5.0, 95% confidence interval = 2.1–11.8). It was more difficult to identify specific aspects of satisfaction with the patient-provider relationship that were associated with considering switching doctors (Table 1). Although patients who reported having considered switching PCPs were less likely to "strongly agree" with the satisfaction items related to access to care (items #2 and #3), the relatively small sample size, skew of satisfaction responses, and rarity of patients admitting to having considered switching PCPs resulted in low power to detect significant differences. We were able to detect significant differences in the frequency that patients who had considered switching PCPs "strongly agreed" with other aspects of the patient-provider rela-

Table 1. Association Between Patient's Ratings of "Strongly Agree" with Specific Primary Care Provider (PCP) Characteristics and 1) Being "Very Satisfied" Overall with Their PCP (Overall Satisfaction Columns) and 2) If They Had Considered Switching PCP (Consider Switching Columns) (N = 235)

Item	Overall Satisfaction		Consider Switching	
	OR	(95% CI)	OR	(95% CI)
1. It is easy for me to travel to my PCP's office.	0.8	(0.3–2.0)	*	
2. It is easy to get medical appointments with my PCP when I need them.	1.5	(0.6–3.8)	0.3	(0.0–2.1)
3. It is easy to get medical care from my PCP when I need it.	1.8	(0.7–4.7)	0.3	(0.0–2.2)
4. It is easy to get medical advice when I phone during office hours from my PCP.	1.9	(0.7–5.2)	0.7	(0.2–3.4)
5. It is easy to get medical advice when I phone before or after office hours from my PCP.	3.0	(0.8–10.5)	0.9	(0.2–4.2)
6. My PCP listens to what I say without interrupting me or rushing me.	2.4	(1.2–4.8)	0.5	(0.2–1.5)
7. My PCP explains things to me in a way that I know what he or she means.	2.7	(1.3–6.0)	0.1	(0.02–1.0)
8. My PCP examines me thoroughly and carefully.	2.4	(1.2–4.9)	0.2	(0.1–0.9)
9. My PCP follows through on my care by telling me about test results or checking on how well I'm doing.	4.4	(1.8–10.9)	0.1	(0.02–1.0)
10. My PCP tells me about ways to keep from getting sick and ways to stay healthy.	3.1	(1.0–9.3)	*	
11. My PCP spends enough time with me during a visit.	3.1	(1.4–6.7)	0.4	(0.1–1.4)
12. My PCP shows respect for what I say.	4.1	(1.8–9.6)	0.4	(0.1–1.4)
13. My PCP involves me as much as I want in making decisions about my health care.	4.1	(1.4–12.1)	0.2	(0.03–1.7)
14. My PCP knows as much as he or she should about my medical history.	4.1	(1.4–12.1)	0.2	(0.03–1.7)
15. My PCP cares about my well-being.	4.9	(1.8–12.9)	0.7	(0.2–2.3)
16. My PCP and I agree about what is important about my health.	4.1	(1.4–12.1)	0.8	(0.2–2.7)
17. My PCP gives me a sense of security about my health.	4.8	(1.6–14.2)	0.7	(0.2–2.4)
18. The medical professionals work together to coordinate my care.	2.3	(1.2–4.4)	0.2	(0.04–0.8)

*Statistic not calculated due to small cell size; not one of those who strongly agreed with the statement was considering switching PCPs.
OR = odds ratio; CI = confidence interval.

tionship: communication (#7), careful and thorough examination (#8), and cooperation among caregivers (#18).

These data indicate that patients' satisfaction with their PCPs was strongly inversely related to their considering switching PCPs. Access was not strongly related to overall satisfaction, and, although there was a trend toward patients less satisfied with their ability to access to their PCPs to be more likely to consider switching PCPs, the difference did not reach conventional levels of statistical significance. Clinicians seeking to maximize older patients' satisfaction and maintain enrollment among their older patients should attend to traditional provider-patient relationship concerns.

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