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T axis and total mortality in elderly men — the Honolulu Heart Program. *K. Alagiakrishnan., K.H. Masaki, I. Schatz, K.Yano, D. Curb, P. Blanchette.* Division of Geriatric Medicine, University of Hawaii, Honolulu, Hawaii

Background: The electrocardiogram has widespread use as a diagnostic tool, but is less often used in determining prognosis. Electrical activity of the heart during repolarization is represented by the orientation of the electrical T axis. Abnormal electrocardiographic changes of ventricular repolarization may reflect possible subclinical myocardial damage. **Objective:** To determine the longitudinal association of abnormal T axis with total mortality in elderly Japanese American males. **Methods:** This is a prospective cohort study based on the fourth examination of 3741 Japanese-American men of the Honolulu Heart Program, aged 71 to 93 years. There has been ongoing surveillance of that cohort for morbidity and mortality. At the fourth exam, subjects received a 12-lead resting EKG. This report is based on analysis of the first 875 EKGs for abnormal T axis. Frontal T axis was estimated in a similar way to derivation of the frontal QRS axis from lead I and avF. Subjects were classified into 2 groups based on T axis: normal (15°–75°) and abnormal (< 15° and > 75°). Thirty-two percent of the subjects had an abnormal T axis. **Results:** Prevalent CHD was significantly more common in those with an abnormal T axis compared to those with a normal T axis (24.5% v. 13.2% respectively, $p = 0.001$). Abnormal T axis was also significantly associated with abnormal body mass index and hypertension. There was no significant association with age, smoking status, diabetes and stroke. Using Cox proportional hazards model, after adjusting for age, blood pressure, BMI and prevalent coronary heart disease, abnormal T axis was a significant independent predictor of 5 year all-cause mortality (RR = 1.43, 95% CI = 1.09–1.88). **Conclusions:** In this study, abnormal T axis was an independent predictor of total mortality. We suggest that abnormal T axis may be an indicator of subclinical coronary heart disease. This simple measure may help to determine which patients should be referred for further cardiac testing.

Nocturnal blood pressure patterns in different age and ethnic groups. *K. Alagiakrishnan, W. Wong,* K.H. Masaki, I . Schatz, D. Curb.* Division of Geriatric Medicine, University of Hawaii, and *Kaiser Permanente, Honolulu, Hawaii

Background: Blood pressure normally dips at night. Non-dipping and extreme dipping are considered abnormal. **Objective:** To study the nocturnal blood pressure patterns in different ages and ethnic groups (including Asians and Pacific Islanders). **Methodology:** This is a retrospective chart review of 93 patients who have undergone 24-hour ambulatory monitoring at Kaiser Permanente, Honolulu. Data available included average daytime BP, average nighttime BP, average 24-hour BP and the nocturnal blood pressure patterns. Standard criteria were used to classify nocturnal BP into dipping, non-dipping and extreme dipping patterns. **Results:** In this study, 42/93 (45%) are non-dippers, 33/93 (35%) dippers and 6/93 (6%) extreme dippers, and 12/93 (13%) have a mixed pattern. In subjects less than 65 years of age, 12/41 (29%) are non-dippers, 17/41 (41%) dippers, 5/41 (12%) extreme dippers, and 7/41(17%) have a mixed pattern, whereas in subjects at or over 65 years, 30/52 (58%) are non-dippers, 16/52 (31%) dippers, 1/52 (2%) extreme dippers, and 5/52 (10%) have a mixed pattern. Significantly more non-dippers are seen in subjects at or over the age of 65 when compared with those below 65 years ($p = 0.02$). There was no significant difference in the nocturnal blood pressure patterns among different ethnic groups. Among the subjects who were taking antihypertensive medications, 26/55 (47%) were non-dippers and 4/55 (7%) were extreme dippers. **Conclusions:** Non-dipper nocturnal blood pressure pattern was commonly seen in the elderly. Fifty-four percent of subjects on antihypertensive medications were in non-dipper and extreme dipper states, which have been associated with end organ damage. Currently, physicians use only daytime BP readings in the office setting when managing hypertension. Monitoring nighttime and/or 24-hour blood pressure in addition to daytime BP may lead to more optimal management of hypertension.

Influence of age, comorbidity and source of efficacy data on optimal treatment choice for localized prostate cancer: a decision analytic view. *S.M.H. Alibhai, R. Nam, G. Naglie, J. Trachtenberg, M.D. Krahn.* University of Toronto, Toronto, Ont.

Background: In the absence of level I data on optimal treatment of clinically localized prostate cancer (PC), clinicians' recommendations are based on conflicting efficacy data. Little has also been published on the effect of age and comorbid illnesses on optimal treatment choice. **Methods:** We constructed a Markov model of the treatment of clinically localized PC. Treatment efficacy data were identified from 2 main sources — pooled case series data (CS) and cancer registry data (CR). We modelled the effects of age upon the probability of non-PC death, pre-treatment prevalence of urinary and sexual dysfunction and perioperative mortality. Separate models were analysed using both CS and CR efficacy data for men aged 70 to 85 undergoing radical prostatectomy (RP), external beam radiotherapy (RT) or watchful waiting (WW). **Results:** For grade 1 disease, WW and RP yielded similar quality-adjusted life expectancy (QALE) for men up to age 75. WW was preferred after age 75. For grade 3 disease, RP was preferred for patients up to age 80. Data source only influenced the preferred treatment strategy for grade 2 disease — CR data suggested RP was preferred up to age 75, whereas CS data suggested WW was preferred regardless of age. The model was sensitive to the utility of WW for grade 1, the utility of impotence for grades 1 and 2, and the level of comorbidity for grades 2 and 3. **Conclusions:** The optimal strategy for treating young-old men with low-grade disease is dependent on patient preferences for extension of life and impact of treatment-related side effects. For grade 2 disease, management is unclear, as results vary with data source for patients 75 or younger. For high-grade disease, our results contravene conventional wisdom and

suggest more aggressive therapy may be indicated even for the elderly, especially those who are otherwise well.

Older patients receive less aggressive treatment for clinically localized prostate cancer. *S.M.H. Alibhai, M.D. Krahn, M.M. Cohen, N.E. Fleshner, G. Naglie.* University of Toronto, Toronto, Ont.

Introduction: Although there have been significant increases in the rates of radical prostatectomy (RP) and radiotherapy (RT) to cure localized prostate cancer (PC), few older patients are treated. We investigated the role of tumour factors, patient age and comorbidity in the treatment decision. **Methods:** All patients with newly diagnosed, histologically-proven PC in Ontario from May 1, 1995, to Apr. 30, 1996, were identified through the Ontario Cancer Registry database. Patient age, stage and grade of cancer, comorbid illnesses and treatment received were collected through chart review of an age-stratified random sample in 3 Ontario communities. Factors influencing receipt of treatment were examined using logistic regression modelling. **Results:** There were 5192 new cases of PC with a mean age of 70.2 (range 36–100). Three hundred and eleven charts were reviewed. RP was provided to 62.9%, 28.6%, 4.4% and 0.0% of patients of ages less than 60, 60 to 69, 70 to 79, and 80+, respectively. For RT the results were 21.0%, 42.9%, 32.2% and 10.3%, respectively. Restricting our analyses to patients with no comorbid illnesses, similar treatment trends were demonstrated. Utilizing chart data, we found no relationship between age and disease stage and a weakly positive relationship between age and grade. In logistic regression modelling, local stage, younger age and lower Charlson comorbidity score were powerful predictors of increased RP use, whereas disease grade and prostate-specific antigen level were not. **Conclusions:** Older patients are offered potentially curative therapy less often than younger patients, despite similar disease severity. More older patients received RT than RP. Many otherwise healthy older patients are not receiving aggressive treatment for localized PC.

Computer analysis shows 2 related motifs in protein and gene sequences involved in neurodegeneration. *S.C. Bar, A. Jurado, W.E. DeCoteau.* Bio-Informatics Unit, Department of Medicine, Section of Geriatrics, College of Medicine, University of Saskatchewan, Saskatoon, Sask.

Introduction: The objective was to identify common motifs within protein/gene sequences shared by viruses and amyloids involved in neurodegenerative processes. **Methods:** Viral and protein sequences reported in EMBL GenBank databases were acquired. Alignment, sequence comparisons and phylogenetics were made using Clustal X and Phylip. **Results:** A 5-amino acid motif, GAIIG, was found in: 61 of 61 (100%) beta amyloid protein sequences; in 25 of 26 (96.2%) non-structural (NS1) proteins of the Japanese Encephalitis virus; in 150 of 224 (67.0%) Newcastle virus fusion protein and in 15 of 352 (4.3%) HIV-1 subtype B gp120 V3 sequences from patients classified as having cognitive motor complex (CMC). A second related motif, GAVVG, was found in 4 of 12 (33.3%) of glycoprotein E herpesvirus 1 and in all 253 (100%) prion sequences. **Conclusions:** The GAIIG motif has been shown to be involved in aggregation/polymerization of beta amyloid protein in Alzheimer's disease (Forloni et al, 1996), transitions from alpha helix to beta plate formations, and direct neurotoxicity in in vitro culture systems. Our results suggest that this motif may interact in a pathophysiological pathway that may be shared at various degrees by the reported viruses and proteins causing neurodegeneration.

Impact of nurse/physician continence clinic intervention on health care costs. *M.J. Borrie,* M. Bawden,† P. Austin.‡* *University of Western Ontario and †Parkwood Hospital, London, Ont., and the ‡Institute for Clinical Evaluative Sciences in Ontario (ICES), Toronto, Ont.

Introduction: This study was to determine the impact of a nurse/physician Continence Clinic using behavioural and lifestyle interventions on outpatient and inpatient health system funded costs during and for 2 years after enrolment in a randomized controlled trial (RCT). **Method:** The health insurance numbers (HIN) of the 421 patients in the London Ontario Continence Clinic RCT, the date of entry to the 6-month study and the 2fi-year follow-up dates were transferred as an electronic file to ICES. The relevant incontinence codes were identified and patient records linked using scrambled health card numbers to OHIP and Canadian Institute for Health Information (CIHI) databases to determine patient utilization of health services. The mean cost per person by group (intervention or control) was determined. Due to the extreme skewness in the cost data, the hypothesis of equality of mean costs in the 2 groups was tested using a boot-strap test of hypothesis. **Results:** OHIP incontinence costs intervention and control groups were $98.30 and $134.56 respectively ($p = 0.067$). Hospital incontinence costs were $54.06 (intervention) and $315.91 (control) ($p = 0.023$) in the subgroup less than 65 years. A trend toward statistical significance was observed. Total (all causes) OHIP and total hospital costs were not significantly different. Surgery occurred twice as often in the control group. **Conclusion:** A nurse/physician Continence Clinic using behavioural intervention has the potential to reduce inpatient health care costs and reduce the likelihood of surgery.

Prevalence of and factors associated with inappropriate prescribing in long-term care facilities. *M.J. Borrie, C.D. Brymer, R.G. Crilly, D. Hindman, J. Esbaugh, R. Pavlakovic, P. Stolee.* Division of Geriatric Medicine, University of Western Ontario, and Shoppers Drug Mart, Southwestern Ontario Regional Geriatric Program, London, Ont.

Introduction: The purpose of this study was to determine the prevalence of inappropriate prescribing (IP), using Canadian criteria, of long-acting benzodiazepines, anticholinergics, non-steroidal anti-inflammatories and tricyclic antidepressants in long-term care (LTC) facilities in Ontario, Canada. A secondary aim was to determine physician-, pharmacist- and facility-related factors associated with inappropriate prescribing. **Methods:** The Ontario Shoppers Drug Mart LTC facility database and additional characteristics, including physician and facility demographics, and consultant pharmacist time, were blinded and analysed. **Results:** The analysis included 12692 residents (age = 84.2 ± 7.6 years: 75.5% female) and 173 facilities. The total mean number of regular and PRN prescriptions was 9.1 ± 4.8 per resident. Of the residents, 13.6% were on at least 1 inappropriate medication studied; 2.7% were on a long-acting benzodiazepine, 2.1% on anticholinergics, 2.4% on non-steroidal anti-inflammatories without cytoprotection and 7.1% on tricyclic antidepressants. Regression analyses controlling for clustering effects suggest resident age and sex, number of regular medications, facility type and lack of physician CCFP certification are associated with IP ($p < 0.05$). **Conclusions:** Inappropriate prescribing in LTC facilities is relatively low. Clinical and resident characteristics not included in this analysis would likely increase explained variance in IP, but the results suggest potential for interventions aimed at physician and facility factors.

Prevalence of parkinsonism, and associated factors, on a geriatric assessment unit. *C. Brymer, J. Hurwitz.* St. Joseph's Health Centre, London, Ont.

Introduction: Parkinsonism was noted in 34% of persons aged 65 and over, and was associated with increased mortality in a recent study of a community population (Bennett et al. *N Engl J Med* 1996;334:71). The prevalence of parkinsonism in patients admitted to a geriatric assessment unit (GAU), and the factors associated with parkinsonism in this setting, have not been established. **Methods:** Chart review of 1009 consecutive admissions to the St. Joseph's Health Centre GAU, March 1996 to May 2000, using a standardized chart extraction tool. **Results:** For the 841 patients aged 65 and over for whom complete discharge summaries were available, the prevalence of parkinsonism (as previously defined by Bennett et al above) was 15.8%. 6.5% of GAU admissions had a 5-year or more history of drug-responsive parkinsonism felt to represent idiopathic

Parkinson's disease, while 9.3% were felt to have "new-onset parkinsonism." Age, sex, coronary artery disease, diabetes, other vascular risk factors, hypertension, depression and incontinence were not associated with "new-onset parkinsonism" in the GAU population. Cerebrovascular disease, dementia and the absence of esophageal/peptic ulcer disease were all significantly and independently associated with "new-onset parkinsonism" in multivariate analysis. **Conclusions:** Parkinsonism in elderly patients admitted to a GAU is much less common than in a recent community study and is associated with cerebrovascular disease, dementia and absence of esophageal/peptic ulcer disease.

Decision analysis for abdominal aortic aneurysm repair in the very elderly. ***W.S. Chiu,* N. Milkovich,† M. Krahn,‡ G. Naglie.*** **§ *‡§Department of Medicine and *†‡§Health Administration, University of Toronto, Toronto, Ont., and *Division of Geriatric Medicine, McGill University, Montreal, Que.**

Introduction: The prevalence of abdominal aortic aneurysm (AAA) increases with advancing age. Elective surgical repair reduces AAA mortality in younger patients; optimal management in the very elderly is unclear. This decision-analysis model for physicians asks, "Is elective repair of large AAA in the very elderly beneficial for survival and quality of life?" by comparing strategies of watchful waiting (WW) and elective repair. **Methods:** Probabilities for complications and utilities of health states were obtained or extrapolated from published literature or expert opinion. Life expectancy was obtained from census life tables; average time to rupture was calculated from published data. The outcome, quality adjusted life expectancy (QALE), was calculated by a deconstructed approach. Health states were selected for frequency, severity or those stated to influence a surgeon's decision to operate. **Results:** Base case analysis for an 81-year-old man with AAA greater than 6 cm, 2 years to rupture, life expectancy 6.82 years, risk of elective surgical death 5% and rupture 38%, showed the elective surgery strategy strongly dominant by 1.78 QALE. Sensitivity analyses showed the life-expectancy estimate sensitive at a 2.5-year threshold, and preference for WW at rupture risk less than 10%. **Conclusion:** There does not appear to be strong rationale to refuse very elderly patients with large AAA elective surgery, except when life expectancy or rupture risk are very low.

The relationship between hypertension and Alzheimer's disease. ***W.E. DeCoteau, K. Dolgopol, F. Dudzic, A. Wilkinson.*** **Department of Medicine (Geriatrics) and Department of Nuclear Medicine, University of Saskatchewan College of Medicine, Saskatoon, Sask.**

Several years ago our group commenced doing single photon emission computerized tomography (SPECT) scans on patients with chronic dementia of the Alzheimer type. We have now studied over 200 cases. In our hands, the procedure has not been very useful re: diagnosis, since 20% of demented persons had a normal scan while in another 15% the changes were non-specific. Many patients did show the classic temporoparietal pattern of Alzheimer's disease, while a significant number showed the patchy pattern suggestive of vascular damage. Interestingly, this latter group basically did not differ clinically from the Alzheimer's group. (They did not show a so-called step-like deterioration.) However, they were more likely to be hypertensive or to have a history of hypertension than those with the classic Alzheimer's scan. Therefore, this study helps confirm the recent evidence that suggests that hypertension and vascular damage are important in the pathogenesis of Alzheimer's disease. It also adds weight to recent data that suggests that aggressive treatment of hypertension in midlife may diminish the incidence of Alzheimer's disease in old age.

Development of an educational package for fellows in geriatric medicine. ***N. Didyk, C. Patterson.*** **McMaster University, Hamilton, Ont.**

Introduction: Many areas of Ontario are underserviced with respect to health services for the elderly. Newly graduated geriatricians will face the challenge of entering communities without established geriatric medicine programs and will be involved in the development of these programs, often in leadership roles. Geriatric medicine training programs emphasize managerial and leadership skills to varying degrees. There is a perceived need for more formal development of these skills during the fellowship. An educational package for the fellow or new geriatrician would be a valuable resource and would facilitate the entry of the new geriatrician into the community. **Methods:** Development of this package will include a needs assessment, with a survey of Ontario Geriatric Medicine Fellowship programs to determine the extent of formal managerial and leadership skills training, and the perceived need for the development of these skills. Data gathered will then be used to create an educational package, which will then be delivered to the fellows. **Evaluation:** Evaluation of the package by obtaining feedback from fellows, geriatricians, program directors and community representatives will be done accordingly.

Vitamin D receptor (VDR) expression in bone of oophorectomized C57BL/6 mice. Changes with age and estrogen replacement. ***G. Duque, K. El Abdaimi, M. Miller, M. Macoritto, R. Kremer.*** **Division of Geriatric Medicine and Calcium Research Laboratory, McGill University, Montreal, Que.**

Vitamin D is an important hormone involved in calcium metabolism and more recently with bone homeostasis at cellular level. Vitamin D receptors have been described in bone and their role in osteoblast–osteoclast interaction has been recently elucidated Osteoblasts and osteoblasts precursors are the only cells expressing vitamin D receptors in bone and there are not reports about changes in vitamin D receptors in vivo during aging process. Our study identifies vitamin D receptor in bone of C57BL/6 oophorectomized mice (4 months and 24 months) with and without estrogen replacement. A total of 123 mice were sacrificed and bone marrow was flushed from tibiae and femur to obtain tRNA, and 1 side limbs were fixed for use in histopathological analysis. VDRs were identified and quantified by Northern blot analysis and immunohistochemistry. Intact old and young mice were compared with oophorectomized mice receiving estrogens. Our results show the level of expression of VDR during aging and after estrogen replacement in young and old mice.

Do drug discrepancies increase the risk of inappropriate drug use and drug interactions in the elderly? ***C. Frank, S. Verma, M. Godwin, J. Anderson, R. Sequin, A. Kelly.*** **Division of Geriatric Medicine Queen's University, Kingston, Ont.**

Introduction: The rate of adverse drug reactions is estimated to be 2 to 3 times higher in the elderly. It has been shown that family physicians may not have full knowledge of the medications their patients are actually using. No studies have attempted to characterize the nature and potential significance of discrepancies between the medications elderly patients are taking and the medication list documented in their family physician's chart. **Methods:** The current study compared the medications taken by 120 community-living seniors in Kingston, Ont., at time of admission to a geriatric day hospital with a medication list provided by their family physicians. The rate of discrepancies between lists was calculated. Discrepancies were classified as inadvertent additions (patient taking something the physician was not aware of), inadvertent deletions (patients not taking something the physician thought they were taking) and discrepancies in dosing schedule. Medication use that could put the patient at risk for adverse drug reactions was estimated by categorizing discrepant drugs into a classification system developed to define inappropriate drug use by elderly patients. The potential for drug interactions secondary to drug discrepancies was estimated using the Clinidata Drug Interaction computer program. **Results:** The mean age of patients in the study was 78 years (range 62–92 years). On average the patients' drug list had 10.55 medications and the physician's list had 7.18 medications. There was a mean of 5.85 discrepancies between lists with 95.8% of subjects having at least 1 discrepancy and 37.5% of sub-

jects with more than 6 discrepancies. More than 30% of all medications listed were inadvertent additions and 6% were inadvertent deletions. Inadvertent deletions of medications (i.e., patients not taking a medication the MD thought they were taking) resulted in a higher risk of "inappropriate drug use." Patients with discrepancies from their family physician's list had a statistically significant difference in the potential for mild, moderate and severe drug interactions (12.7 v. 7.3, $p < 0.001$). This finding was particularly pronounced for moderately severe interactions. (7.7 v. 4.1, $p < 0.001$). **Conclusions:** This study found a significant difference between the medications that family doctors thought their elderly patients were taking and the actual medications being used by the patients. Although a large proportion of these discrepancies involves OTC drugs, they may lead to inappropriate medication use by the patient and put them at higher risk for potential drug interactions.

The effects of low and moderate intensity physical activity on cardiac risk factors, function and psychological well-being. ***S. Grandy, C. MacKnight, P. Campagna.*** **Dalhousie University, Halifax, NS**

Introduction: Although authorities recommend 30 minutes of moderate intensity physical activity most days, the definition of "moderate" varies from study to study. We investigated the effect of low and moderate intensity physical activity on cardiac risk factors, functional status and psychological function. **Methods:** Subjects 65 and over who were ambulatory (with or without aid) and not dependent in activities of daily living were recruited. They were randomized to low-intensity exercise (35%–45% heart rate reserve) or moderate intensity (50%–60%). The exercise modality was a 16-week walking program. Outcome measures included blood pressure, lipids, weight, VO_2max, Timed Up and Go (TUG), Geriatric Depression Scale and others. A general linear model was used to test main effects and interactions. **Results:** Recruitment was difficult, resulting in 12 subjects with 8 completing the study. VO_2max increased ($F = 8.61$, $p = 0.022$), and weight ($F = 3.79$, $p = 0.049$) and TUG ($F = 6.14$, $p = 0.042$) decreased. Total cholesterol also increased. There were no significant differences between the 2 exercise groups. **Conclusions:** Although the achieved sample size was smaller than planned, our results suggest that both low and moderate intensityphysical activity are of benefit to older adults. The small sample size, however, raises the possibility of a type II error.

Reducing falls among older adults: a randomized controlled trial. ***D.B. Hogan, F.A. MacDonald, E.M. Ebly, C. Harbidge, J. Betts, S. Becker, B. Metcalfe, M. Hunter, B. Delarue.*** **Calgary Regional Health Authority/University of Calgary, Calgary, Alta.**

Introduction: An estimated 25% to 35% of seniors fall each year. Multidimensional evaluation looking for modifiable fall risk factors and exercise have been shown to reduce subsequent falls in a number of clinical trials. We wished to see if this approach would be effective when offered as an open consultation service. **Methods:** Randomized controlled trial. Subjects who met our inclusion criteria (community-dwelling residents of Calgary, 65+ years of age, fall within the preceding 3 months) and did not have one of our exclusionary criteria were randomized to usual care or the intervention (in-home assessment by a member of our multidisciplinary team with the development of an individualized treatment plan; exercise training in a local geriatric day hospital for those deemed likely to benefit). Primary outcomes were falling during the subsequent year, number of falls, and fall-related ED visits/hospitalizations. **Results:** One hundred and sixty-three subjects were randomized. For those who had 2+ falls in the preceding 3 months, the intervention was associated with a significantly ($p = 0.038$) decreased risk of falling during the next year. No benefit was seen for those who had 1 fall in the preceding 3 months. There were no significant changes in utilization rates. **Conclusion:** Fall assessment programs incorporating in-home assessments, individualized treatment plans, and exercise appear effective in decreasing the risk of falls in high-risk seniors. (Study supported by the Alberta Heritage Foundation for Medical Research)

Can the clock drawing predict executive cognitive impairment? ***A.G. Juby, V. Baker, S. Tench.*** **Division of Geriatric Medicine, Department of Medicine, University of Alberta, Edmonton, Alta.**

The importance of executive cognitive impairment as an indicator of poor functional outcomes, and problem behaviour in dementia, has been previously documented. The challenge has been to identify these patients, as standard cognitive screening tools are often "normal." The objective of this study is to see if a clock drawing can be used as an indicator of executive cognitive impairment. A retrospective review was done of 52 consecutive patients attending a multidisciplinary geriatric assessment clinic, in whom an executive interview (EXIT) had been done in addition to the standard evaluations (Folstein MMSE and clock drawing). All participants also underwent a comprehensive geriatric assessment. There were 31 women and 21 men with average age of 78 years. Twenty-three of 52 had a normal (> 23) MMSE score. Of these, 12 had abnormal clock drawings (> 3) with the Watson scoring method, and 4 had abnormal clock drawings (< 6) with the Sunderland scoring method. Of those with a normal MMSE score and an abnormal clock score, 92% had an abnormal (> 15) EXIT score. The Watson clock scoring method was more sensitive than the Sunderland method (74% v. 27%) in detecting executive cognitive impairment in the presence of a normal MMSE score. In only 4 of the 52 participants, the MMSE score and clock score were normal, but the EXIT was abnormal. Ninety-three percent of cases with an abnormal MMSE score had abnormal clock scores (Watson method) and abnormal EXIT scores. A normal MMSE score does not exclude executive cognitive impairment. An abnormal clock drawing (scored by the Watson method) may be an easily performed indicator of executive dysfunction: (i) prompting more specific executive function testing; (ii) providing an explanation for functional difficulties despite a normal MMSE score.

L'évaluation de la qualité en unité de courte durée gériatrique (UCDG) par le cas traceur des chutes: validation d'un instrument interdisciplinaire. ***J. Latour,*† M.-J. Kergoat,*† N. Leduc,‡ L. Boucher,† J. Morin,§ E. Painchaud.**** ***Institut universitaire de gériatrie de Montréal, †Centre hospitalier de l'Université de Montréal, ‡GRIS, Université de Montréal, Montréal (Québec), et §Centre hospitalier de l'université se Québec, Québec (Québec)**

Cette étude a pour but de valider auprès d'un groupe d'experts, les éléments d'un instrument de mesure interdisciplinaire de la prise en charge des patients chuteurs en UCDG. Les groupes de professionnels consultés sont: médecins ($n = 7$), infirmières ($n = 13$), ergothérapeutes ($n = 14$), physiothérapeutes ($n = 14$), travailleurs sociaux et infirmières de liaison ($n = 14$). Des critères de sélection précis ont été établis afin de s'assurer de l'expertise des participants et la méthode de recrutement était standardisée. Le processus de consultation a été effectué selon deux méthodes reconnues pour l'établissement de consensus pour des problématiques complexes soit: la méthode de groupe nominal pour les experts médicaux et pour les autres professionnels, la méthode Delphi. Cette dernière est basée sur un questionnaire rétroactif en trois étapes, se déroulant par envois postaux. Les sphères de consultation englobaient l'ensemble des étapes de prise en charge du patient hospitalisé : l'histoire de cas, l'évaluation globale, l'investigation, l'intervention et le traitement et finalement le congé et le suivi. Les participants ont été questionnés pour chacun des items quant à leur opinion pour l'attribution des tâches aux différents professionnels de la santé. Le taux de retour des questionnaires au terme des trois étapes est de 90 %. Le consensus, pour un item donné, était établi si le taux d'accord était d'au moins 90 %. Les commentaires, tout au long du processus, ont permis d'effectuer un inventaire détaillé des items à colliger dans l'évaluation et la prise en charge adéquate des patients chuteurs. Les résultats permettent également de déterminer le rôle relativement précis de chacun des intervenants dans ce processus. Nous avons obtenu les éléments d'un instrument de mesure validé auprès d'un groupe d'experts, pour l'évaluation des chuteurs. Ces éléments doivent être structurés sous forme d'arbres décisionnels pour l'analyse des dossiers.

The effect of a home visit on first-year medical student's attitudes toward older adults. *C. MacKnight, C. Powell.* Dalhousie University, Halifax, NS

Introduction: Medical students have little curriculum exposure to geriatrics or geriatricians. We investigated the effect on attitudes toward aging of a home visit by first-year medical students. **Methods:** Students were introduced to the challenges of aging in an introductory lecture. After this lecture they completed a survey on "Attitudes toward aging." In pairs they visited an older person at home. This visit was not to discuss medical issues but rather the challenges of aging. A small-group debriefing session followed, with a second administration of the survey. The survey provided data in 7 domains: realistic toughness toward aging; denial of the effects of aging; anxiety about aging; social distance to the old; family responsibility for older adults; public responsibility; unfavourable stereotype. Mean scores at time 1 and time 2 were compared with the *t*-test, and planned subgroups analyses (male v. female, young v. mature students) were undertaken. **Results:** Eighty-three students responded at time 1 and 73 at time 2. Only attitudes 2 and 7 changed significantly, both reflecting an unfavourable change. In subgroup analysis, females and younger students changed on attitudes 2 and 7, males only changed on attitude 2, and mature students experienced no significant change. **Conclusions:** The changes reflected on the questionnaire were disappointing. This may reflect properties of the instrument, the predominantly "successful agers" among the patients or a true negative effect of the intervention.

Three-month follow-up of patients discharged from a geriatric day hospital. *M.L. Malone, A Hill, G. Smith.* Division of Geriatric Medicine, University of British Columbia, Vancouver, BC

Introduction: To determine if mobility and functional status of frail elderly patients attending a geriatric day hospital are maintained 3 months following discharge. **Methods:** Prospective, before and after, quasi-experimental design. Participants were community-dwelling elderly referred to a geriatric day hospital for comprehensive geriatric assessment and multidisciplinary management. All patients who attended the day hospital for at least 5 visits and were discharged between Aug. 1, 1999, and Mar. 1, 2000, were eligible ($n = 41$). Measurements were performed at admission and discharge and at 3 months postdischarge. Data were analysed using the Wilcoxon signed ranks test. **Outcome measures:** Barthel Index (BI), Timed Up and Go Test (TUG), Berg Balance Scale (BBS), Mini Mental Status Exam (MMSE), clock drawing, Geriatric Depression Scale (GDS) and Zarit Care Giver Burden Index. **Results:** From admission to discharge significant improvements were seen in the TUG ($p = 0.001$) and GDS ($p = 0.002$) and BBS ($p < 0.001$) with no changes in the other measures . From discharge to 3 months postdischarge, the TUG, BBS and MMSE declined ($p < 0.001$ for each measure), with no significant difference in BI, clock drawing or GDS. From admission to 3 months postdischarge, MMSE scores declined ($p = 0.001$) and GDS scores improved ($p = 0.007$) with all other outcomes unchanged. **Conclusions:** No sustained improvements in mobility or functional status were seen at 3 months following discharge from a geriatric day hospital. Further studies exploring methods to delay progression in multiple domains are needed. Some measures were stabilized over a 6-month period.

Over-the-counter and herbal medication use in a well elderly population. *J.E. Martin, J.L. Wells*. University of Western Ontario, London, Ont.

Introduction: Self-prescribed-medication (SPM) use is very common. Objectives were to assess community-dwelling seniors about their health status, beliefs about SPM, what and why they take them, and whether they tell their family doctor. Depressive symptoms and demographic variables were assessed for association with herbal medication use. **Methods:** One hundred and sixty-two seniors (> 60 yr) were randomly selected at the community shopping mall. A questionnaire examined attitudes about SPM, health status and health care. Variables included demographics, prescribed medications and depression. Likert scales evaluated attitudes about alternative therapies, their family doctor and chronic illness. The EBAD was used to assess depressive symptoms. The χ^2 test was used to compare users and non-users of herbal medications. Percentages were calculated for the Likert categories. **Results:** The response was 52%. 51.8% were 70 to 79 years old, 35.3% were 80 to 89 years old and 12.9% 60 to 69 years. Eighty-three percent were women. Forty-three percent had some college or university education. The mean number of prescribed medications was 3.3. Forty-two percent felt they had disabling health problems. Twenty-one percent had symptoms of depression. Forty percent had used 1 herbal medicine in the last year; 80% had used 1 vitamin or mineral, and 49% had used 1 over-the-counter medication (OTC). Reasons for herbal medicine were disease prevention (67%) and dissatisfaction with conventional therapies (30%). Herbal meds were felt to be safe (48%) and less likely to cause side effects than prescribed meds (46%). Thirty-four percent had not informed their family physician of their use of herbals. Although most (86%) did not expect SPMs to cure, 42% felt their health improved because of them. Twenty-five percent were prescribed a medication which is contraindicated in the elderly. Twenty-four percent were taking a herbal remedy which had potential side effects. **Conclusions:** Use of SPM is common in this community-dwelling seniors population. Many seniors do not tell their family doctor that they are taking SPMs. More research is needed to explore the use and safety of SPM.

Use of the levodopa test for "drug-responsive" parkinsonism in a geriatric assessment unit (GAU). *C. McKenzie, R. Werstine, C. Brymer, J. Hurwitz.* St. Joseph's Health Centre, London, Ont.

Introduction: Parkinsonism is a frequent finding in elderly patients admitted to a geriatric assessment unit. Although using the levodopa test for "drug-responsive" parkinsonism has previously been described (D'Costa et al. *Age Ageing* 1995;24:210), the safety and validity of the levodopa test in GAU patients, many of whom have cerebrovascular disease, has yet to be determined. **Methods:** A single dose of 100 mg levodopa/25 mg carbidopa was given by mouth, with 10 mg domperidone, to 54 patients who met previously defined criteria for parkinsonism (Bennett et al. *N Engl J Med* 1996;334:71). Three trials of a hand-tapping test and a "timed up and go" test were performed before and 1 hour after administration of levodopa. A positive test was defined as an average 20% improvement in either measure. **Results:** Eighteen of the 54 patients had been on chronic levodopa therapy prior to the levodopa test. Based on test results, 14 had their levodopa discontinued. Nineteen of the other 36 patients had chronic levodopa therapy initiated on the basis of test results. Sixty percent of patients had CT or MRI evidence of cerebrovascular disease; there was no difference in levodopa responsiveness between patients with and without cerebrovascular disease. There were no significant side effects from test administration of levodopa beyond transient nausea in less than 10% of cases. In only 1 of 54 cases was the decision to initiate or not initiate chronic levodopa therapy based on the levodopa test result later reversed. **Conclusion:** The levodopa test for drug responsive parkinsonism can safely and reliably be performed on a geriatric assessment unit, and leads to the new initiation or discontinuation of long-term drug therapy for parkinsonism in 60% of appropriate patients.

Evaluation of utility-based quality-of-life measures in Alzheimer's disease: preliminary results. *G. Naglie, C. Tansey, M. Krahn, J. Irvine, P. Ritvo, G. Tomlinson, M. Silberfeld.* Toronto General Hospital, University Health Network, University of Toronto, Toronto, Ont.

Objective: To evaluate 3 generic utility-based quality-of-life (QOL) instruments to measure QOL in Alzheimer's patients and caregivers acting as proxy respondents. **Methods:** Patients with mild or moderate

Alzheimer's disease and an informed caregiver were recruited from memory clinics and physician practices in Toronto. Patient–caregiver pairs were randomized to receive 1 of 3 utility-based instruments to be completed on 2 occasions: Quality of Well-being Scale (QWB), Health Utilities Index (HUI) or European Quality of Life Instrument (EuroQol). **Results:** To date, 35 patient–caregiver pairs have been analysed. The patients had a mean age of 80.0, a mean MMSE of 18.7 and 63% were female. For all 3 measures, the QOL estimates were quite reproducible from time 1 to time 2 for patient self-ratings, as well as for caregiver proxy ratings. At both times 1 and 2, patient self-ratings varied significantly from the caregiver proxy ratings, with patients usually rating their QOL higher. For the QWB and EuroQol, the proxy-rated quality of life decreased significantly with decreases in MMSE, and a similar nonsignificant trend was seen with the HUI. **Conclusions:** Preliminary results suggest that Alzheimer's patients with mild to moderate disease can reliably rate their QOL using generic utility-based measures, and patients tend to rate their quality of life higher than their caregivers acting as proxies.

Evaluation of a travelling geriatric clinic: some consumers' views. ***V. Powell, C. MacKnight, C. Powell.*** **Dalhousie University, Halifax, NS**

Introduction: As part of the evaluation of a peripatetic geriatric consulting clinic, located 1⁄ hours by car from the base geriatric service in Halifax, outpatients and their companions were asked to quantify, from their point of view, the advantages of attending a clinic held in a local hospital rather than travelling to Halifax. It was assumed that living in rural areas hinders some elderly patients' access to a geriatrician. **Methods:** A 30-item questionnaire was administered to each patient or companion. **Results:** One hundred and ten people were interviewed during the clinic. Twelve said they would not attend a clinic at the base geriatric centre. Only 3 patients drove themselves; the other 107 relied on family or friends to drive them even to nearby clinics. As a last resort patients would pay a driver to get them to the clinic. **Conclusions:** When health care professionals are willing to travel and deliver services to patients near their homes, patients and their carers benefit physically, socially and financially. In the future effective telehealth communication may obviate the need for either party to move!

A proposal to restructure the long-term care beds in St. John's, Nfld. ***M. Reddy, B. Barrett, P. Parfrey, D. Neville*****. St. John's, Nfld.**

Introduction: There is a concern that there is a mismatch between the needs of the elderly and the level of care provided in long-term care (LTC) facilities. In 1991, the number of LTC beds per 1000 people over the age of 75 years in Newfoundland was the highest in Canada. Alternatives to institutional placement would be preferable for a multitude of reasons, including social, medical and financial. The absence of data concerning the mismatch makes it premature to recommend plans for restructuring. The primary objective of this study is to assess the care requirements of nursing home (NH) residents in the St. John's region and to determine actual and optimal population rates for institutional care. This data as well as actual bed numbers incorporating demographic changes will be used to propose an optimal number of beds and a proposal to restructure the present LTC beds in this region. **Methods:** Data for these clients was obtained by interviewing the charge nurses responsible for individual units within each institution. All clients seeking placement in the institutional LTC sector for the year Feb. 20, 1995, through Feb. 20, 1996, were prospectively followed. Mortality and morbidity data on this incident cohort of 426 clients was collected upon entry to LTC as well at 2 and 4 years after initial placement. With this information as well as a search of the medical literature, the natural history of LTC residents was determined. The current needs and level of care were assessed and compared with 2 objective, validated tools for assessing the need for professional nursing care: RUGs (resource utilization groups score) and RCS (resident classification system). **Results:** Thirty-seven percent of residents in institutional LTC had no objective measureable disability and probably do not require the resources of an NH. Forty-three percent of residents were found to have a moderate level of impairment. The majority of these clients have cognitive impairment as their major reason for seeking LTC. **Conclusions:** Alternative facilities to NHs would be preferable for these cognitively impaired clients. Suggestions for these alternative facilities will be described. The data is being analysed using SPSS. The information will then be used to predict the needs of the LTC sector and will assist in the restructuring process. This information can help provide a foundation for current and future program planning.

Development and validation of a new instrument for frailty. ***D.B. Rolfson, S.R. Majumdar, A. Tahir, R.T. Tsuyki.*** **University of Alberta, Edmonton, Alta.**

Introduction: The concept of "frailty" has evolved over the past decade from a model of physical frailty (sarcopenia) and physiologic frailty (homeostenosis) through to a dynamic model that also includes functional performance and social supports. Comprehensive geriatric assessment will identify frailty and the geriatric syndromes which comprise it. Unfortunately, the large majority of health care providers lack the skills or time to perform such assessments. Therefore, we created and validated a brief, acceptable and reliable instrument for frailty. **Methods:** Discrete and valid screening items for common geriatric syndromes were identified through a comprehensive literature search. A set of 10 screening items was selected in the development of the "FRAIL SCALE." The instrument was then reviewed by an expert panel for its content validity. For criterion validity, a prospective cohort of 200 consecutive seniors (seen in inpatient or outpatient geriatric consultation) will be assessed with the FRAIL SCALE; this assessment will be compared with the results of a comprehensive geriatric assessment. Reliability (Crohnbach's alpha) and construct validity will also be determined. **Results:** Content validity for the FRAIL SCALE is excellent with consensus among expert panel members that the instrument is simple in its administration, comprehensive in its scope and clear in its interpretation. Based on preliminary data, the FRAIL SCALE appears to be a valid and reliable measure of frailty. Training requirements to administer the scale are minimal and the instrument can be completed in under 5 minutes. **Conclusions**: Preliminary data shows the FRAIL SCALE to be both valid and reliable as a screening tool for frailty, when applied to a spectrum of seniors seen in geriatric consultation. Future validation will examine the performance of the tool in other more selected populations.

Resource utilization, treatment patterns and health-related quality of life in OAB patients with urge incontinence. ***A.J. Rosner,* D.L. Becker,* M. Borrie,† B. Miller.‡*** ***Innovus Research Inc., Burlington, Ont., †University of Western Ontario, London, Ont., and ‡Pharmacia & Upjohn, Mississauga, Ont.**

Introduction: This study was to characterize the resource utilization and treatment patterns associated with urge incontinence (UI) and to assess the impact of UI on patients' health-related quality of life (HR-QoL). **Methods:** A questionnaire for patients with UI collected micturition and leakage data, direct and indirect resource use estimates, treatment utilization information and HR-QoL data. HR-QoL was measured using the EuroQol (EQ-5D) and a disease-specific instrument, the King's Health Questionnaire (KHQ). **Results:** Patients (n = 60) were 62.5 ± 15.5 years old, 95% female with UI (median of 4 yr), had a median of 3 leakages/24 h and a mean of 13 voids/24 h. In the prior 4 weeks they had 102 visits with health care providers and 68 tests/procedures. Feminine hygiene products, incontinence pads and diapers were used by 43%, 32% and 8% of patients at a median of 16, 12 and 7 unit/wk, respectively. Pelvic floor exercises were used by 35% while only 27% used pharmacotherapy. UI interfered with their usual activities in 83% of patients. The average utility value using the EQ-5D, on a scale of 0 to 1 was 0.68, while the results of the KHQ showed marked impairment in HR-QoL, in the incontinence impact, sleep/energy, role and physical limitations domains. **Conclusions:** UI represents a significant burden to patients, their fami-

lies, and the health care system. Only a small proportion of patients are receiving treatment, highlighting the need to improve awareness concerning the benefits of treatment for UI.

Residence and severity of dementia at diagnosis. ***A. Sibley, C. MacKnight, K. Rockwood, for the Consortium to Investigate Vascular Impairment of Cognition (CIVIC).*** **Dalhousie University, Halifax, NS**

Introduction: Previous studies have shown that social determinants not directly involved in the disease process may be implicated in the timing of dementia diagnosis. Using data collected from a national, multicentre trial, we explore the relationship between who the patient lives with and severity of dementia at diagnosis. **Methods:** Data were collected from the baseline interviews of 1325 patients enrolled in the CIVIC study. Data collected included: age, sex, living situation and scores on the Mini-Mental State Exam (MMSE), Global Deterioration Scale (GDS), the Functional Assessment Staging Tool (FAST) and the Cumulative Illness Rating Scale (CIRS). Living situation was grouped into: (1) lives alone, (2) lives with spouse, (3) lives with child, relative or other, and (4) lives in a nursing home. A general linear model univariate analysis was used to compare patients by their respective living situations for differences in mean scores on each of the 3 measures of cognitive function. **Results:** Statistical analysis of both unadjusted data, and data adjusted for age, sex, and CIRS scores showed significant differences amongst the groups. Those who lived alone were diagnosed at an earlier stage, followed by those who lived with spouse, those who lived with a child or other, and finally those who lived in a nursing home. **Conclusions:** Patients who live alone often are diagnosed earlier in the course of their illness. In the face of more comorbid illnesses, formal cognitive diagnoses are largely made at later stages.

There is an extremely low prevalence of antibiotic-resistant organisms in rehabilitation and chronic hospitals in Winnipeg. ***P.D. St. John, J.M. Embil, G.C. Zhanel, F.Y. Aoki, B. Kennedy, F. Penner, J. Kennedy, K. Fox, S. Koropas, L. Palatnick, P. Landolfo, L.E. Nicolle, D.J. Hogan.*** **University of Manitoba, Riverview Health Centre, Health Sciences Centre, Deer Lodge Centre, and Misericordia Health Centre, Winnipeg, Man.**

Introduction: Infection with antibiotic resistant organisms has important implications for mortality, morbidity and costs of care. There is a low prevalence of antibiotic resistant organisms in acute care facilities in Winnipeg. The objective of this study was to assess the prevalence of colonization by VRE, MRSA and PRSP in rehabilitation and chronic hospitals in Winnipeg. **Methods:** Consenting residents of 3 chronic care and rehabilitation facilities in Winnipeg were surveyed for the presence of MRSA, VRE and PRSP. Throat, nares, and rectal swabs were performed, and were cultured on selective media. All organisms growing on media were identified. Antibiotic susceptibility testing was performed using the microdilution broth method. **Results:** Of a total of 550 residents, 212 participants have to date provided consent and been swabbed. No residents were colonized with MRSA, VRE or PRSP. **Conclusion:** There is an extremely low point prevalence of colonization by MRSA, VRE, or PRSP in chronic and rehabilitation facilities in Winnipeg.

Self-reported memory loss predicts the development of cognitive impairment over 5 years. ***P. St. John, P. Montgomery, for the Manitoba Study of Health and Aging.*** **Winnipeg, Man.**

Introduction: There are conflicting reports as to whether or not self-reported memory loss predicts the development of cognitive impairment over time. We therefore investigated the usefulness of self-reported memory loss as a predictor of cognitive impairment over a 5-year interval. **Methods:** Data from the Manitoba Study of Health and Aging were used. Community-dwelling participants were randomly sampled after stratifying on age and region. These participants were interviewed in 1991/92 and again in 1996/7.The screening interview included demographic variables, cognitive function tests and clinical variables. Self-reported memory loss was asked of all subjects ("In the last year have you had memory loss?"). Participants scoring less than 78 on the Modified Mini-Mental State examination underwent a clinical assessment to determine the presence or absence of dementia. The diagnosis of dementia was made by scoring less than 78 on the 3MS and having a clinical examination consistent with dementia, using DSM-IIIR criteria. **Results:** There were 1051 persons who were initially cognitively intact who survived to 1996/7. In cognitively normal persons reporting troubles with their memory, 14.4% developed dementia, versus 7.5% in persons who were initially cognitively normal reporting no memory losses (p = 0.002). **Conclusions:** People with normal cognition who report memory problems are more likely to develop dementia in the next 5 years. Further research is needed to determine other predictive variables predicting cognitive loss in those with normal cognitive status. Clinicians should follow cognitively normal persons who report memory problems closely.

Low-normal MMSE scores predict mortality and institutionalization. ***P. St. John, P. Montgomery, B. Kristjansson, I. McDowell.*** **Winnipeg, Man.**

Background: It is well established that dementia predicts poor outcomes such as mortality and institutionalization. However, it is less clear whether low-normal cognitive scores are also associated with adverse outcomes. We examined the association of MMSE scores at all levels with mortality and institutionalization in the Canadian Study of Health and Aging (CSHA). **Methods:** The CSHA is a longitudinal, population-based study of cognition and health status of the elderly. In 1991, baseline demographic and health data were collected from 8949 randomly selected people in the community. They were also screened with the 3MS; MMSE scores were extracted from this. In 1996, outcomes including mortality and institutionalization were assessed. Complete follow-up data are available for 8512 people. **Results:** There was steadily increasing mortality gradient from the highest to the lowest initial MMSE scores. A similar gradient was found for institutionalization (see Table). Results from multivariate logistic regression show that these gradients persisted after adjustment for age, gender, education and self-rated health status. **Conclusions:** The gradient of risk for these outcomes stretches across the range of MMSE scores. Clinicians should be aware that low-normal cognition carries significant risks.

MMSE (time 1)	0–17	18–23	24	25	26	27	28	29	30
Mortality	66%	41%	32%	28%	27%	22%	20%	15%	12%
Institutionalization	47%	28%	18%	17%	12%	11%	7%	5%	4%

Effects of vitamin C supplementation on antioxidants/lipid peroxidation markers in elderly subjects with type 2 diabetes. ***D. Tessier, A. Khalil, P. Maheux, C. Kuntz, M.-A. Dési, T. Fülöp.*** **Sherbrooke, Que.**

Objective: To study the role of vitamin C on cellular reserve of antioxidants and on lipid peroxidation products in an elderly population with type 2 diabetes. **Method:** Double-blind randomized study in patients with type 2 DM more than 65 years old at baseline with randomization to placebo (P), 0.5 g or 1 g of vitamin C/d for 12 weeks. **Results:** Thirty-six patients have been randomized (n = 12/group). Granulocytes level of vitamin C increased significantly in the 0.5- and the 1-g groups compared with placebo (week 12: 2.72 ± 1.88 [P], 5.11 ± 2.06 [0.5 g], 5.66 ± 2.00 [1 g], p = 0.01). The cellular level of glutathione (GSH) significantly increased in the 0.5- and the 1-g groups (week 12: 0.17 ± 0.14 [P], 0.35 ± 0.14 [0.5 g], 0.52 ± 0.39 [1 g], p = 0.01) but GSSG levels did not change (week 12: 0.17 ± 0.21 [P], 0.15 ± 0.07 [0.5 g], 0.18 ± 0.17 [1 g], p = 0.9). LDL content in vitamin E significantly increased in the 1-g group only (baseline: 1.23 ± 0.41, week 12: 1.98 ± 0.38, $p < 0.05$). No significant difference was observed between groups in regard to LDL and HDL contents of thiobarbituric acid reactive substances and conjugated dienes. Under γ irradiation, resistance of LDL and HDL particles was not significantly different

among the 3 groups despite higher content of vitamin E in LDL particles in the 1-g group. **Conclusions:** Vitamin C supplementation (0.5 and 1 g) favourably affects antioxidants reserve in granulocytes and LDL particles of older patients with type 2 DM. Resistance of lipid particles to oxidation was not influenced by our intervention.

Impact of hospitalization in the frail elderly. ***D. Wan-Chow-Wah, S. Gold, J. Monette.*** **Division of Geriatric Medicine, Sir Mortimer B. Davis-Jewish General Hospital, McGill University, Montreal, Que.**

Our objective was to examine the impact of hospitalization on functional status of elderly patients admitted to an acute care geriatric ward. The study was conducted on the 30-bed acute care geriatric ward of the JGH over 4 months. Functional abilities were assessed using the Barthel Index for ADLs and OARS Index for IADLs at 4 time periods: 1 month prior to admission, at admission, at discharge, 1 month after discharge. Information was obtained by self-report or from collateral sources (primary caregivers/family members, hospital personnel). Data following discharge was obtained by telephone. Chart reviews were also performed. Exclusion criteria were death in hospital or discharge to long-term care. Data analysis was conducted using the Wilcoxon rank sign and χ^2 tests. Diagnoses were classified as subacute and acute, acute meaning those requiring urgent medical attention. Among the 51 patients included in the study, there was a general trend of marked functional decline between 1 month preadmission and admission, and an increase in functional status between admission and discharge. Patients with acute diagnoses had a significantly lower Barthel score at admission compared with the subacute group and they had significant negative differences in scores between preadmission and all other times; no such difference was seen in the subacute group. Women, patients 80 years old and older, patients with longer LOS, and those living in foster/nursing homes tended to have lower Barthel scores overall. In conclusion, our study shows that patients were often able to recover substantially with the care received in hospital. This emphasizes the importance of assessing functional status and working towards restoring their functional capabilities during hospitalization.

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