
THE NEW AGE.

VOL. IV. P New Residence May 15 2012 NO. 36.

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THE NEWS OF THE WEEK

LATER NEWS.

MANY BILLS INTRODUCED

ROBERTS EXCLUDED.

Combined Annual Research Day of the McGill Division of Geriatric Medicine with the MUHC Division of Clinical Epidemiology

May 15th, 2012

Schedule of Events and Presentations

7:30 to 8:00		Good breakfast snacks and set-up of posters
8:00		Welcome
8:15	Francois Beland	Guest speaker – "Frailty is in the eye of the beholder"
9:30	Karunananthan	When should the clock start ticking? Methodological challenges in the study of physical function and mortality
9:45	Martelli	Quality of surgical care is inadequate for elderly patients
10:00	Navarrete-Reyes	Preoperative physical performance and complications after robotic surgery in elderly patients with endometrial cancer
10:15	Figueiredo	Nordic walking for Geriatric Rehabilitation
10:30 to 11:00		Caffeine fix and other good snacks and viewing of colourful posters # 1-6
11:00	Hum	Do you see what I see? Modeling longitudinal change in Multiple Sclerosis
11:15	Bouchard	Fatigue shows a complete moderation on illness intrusiveness in Multiple Sclerosis patients
11:30	Ng	The path to work in people with Multiple Sclerosis
11:45	Khanassov	Case management for patients with cognitive impairment in primary care and community settings: a mixed systematic review
12:00 to 1:00		Excellent lunch and poster viewing # 7-13, 20-22
1:00	Ruth Barclay-Goddard	Guest speaker – "Participation"
1:45	Li	Adding nutrition and anxiety reduction to an exercise-based prehabilitation program
2:00	Vadaga	Age-related differences in the Time Course of Backward Inhibition
2:15	Lungu	What we know about motor learning during social interaction via behavioral and neuroimaging evidence- Implications for Geriatrics
2:30	Myhr	Predicting outcomes of short-term CBT in a university teaching unit: comparisons of outpatients with anxiety, depression and psychosis in the MUHC CBT Unit
2:45 to 3:15		More caffeine and more poster viewing # 14-19, 23,24
3:15	Sinclair	Bayesian methods of design and analysis
3:30	Palladini	Harmonization of patient report and objective measures of cognitive deficits: a Rasch Analysis
3:45	Barbic	What is in a total score using Rasch Measurement theory to inform the interpretation of the total score in measures commonly used in health science
4:00	Tang	Sources of variation in the use of special education programs in Canada
4:15 to 4:30		Wrap-up and invaluable prizes
4:30 ……		Fine wine and only the best cheese

Guest Speaker: **FRANCOIS BELAND**

"Frailty is in the eye of the beholder"

It is still customary to introduce a study on frailty by stressing that this concept still eludes us. It is about time to propose and undertake a process that allows either to let it escape and run away, or to understand its nature, identify its components and determine its usefulness. Frailty may be an illusion, a characteristic non-syndromic, a medical syndrome or a geriatric syndrome. Only by taking seriously what distinguishes the geriatric medical syndrome from a nonsyndromic characteristic that it will be possible to conclude anything about the value of the concept of frailty. So far, studies on the concept of frailty were exploratory at best, at worst devotions statistics. Using data on the five components of the frailty of Fried available in Quebec Longitudinal Study on frailty FRéLE, an operationalization of frailty as a geriatric syndrome is proposed along with the operationalization of two cons-models, one of frailty as a medical syndrome and the other as a non-syndromic characteristic of frailty. The comparison of these empirical operationalizations can reject the frailty as medical syndrome. Moreover, the results of analyzes on the operationalization of frailty as a geriatric syndrome geriatric or as non-syndromic characteristic do not appear conclusive, apparently leaving the final decision to believers. The search continues ...

Il est encore habituel d'introduire une étude sur la fragilité en soulignant que cette notion nous échappe encore. Il est temps de proposer et d'entreprendre une démarche qui permette soit de la laisser s'échapper, courir et disparaître, soit d'en saisir le caractère, d'identifier ses composantes et de fixer son utilité. La fragilité peut-être une illusion, une caractéristique non-syndromique, un syndrome médical ou un syndrome gériatrique. C'est uniquement en prenant au sérieux ce qui distingue le syndrome gériatrique d'un syndrome médical d'une caractéristique non-syndromique qu'il sera possible de conclure quoique ce soit sur la valeur de la notion de fragilité. Jusqu'ici, les études sur la notion de fragilité ont été au mieux exploratoires, au pire de pieux exercices statistiques. Utilisant les données sur les cinq composantes de la fragilité de Fried disponible dans l'étude québécoise longitudinale sur la fragilité FRéLE, une opérationnalisation de la fragilité comme syndrome gériatrique est proposée en même temps que l'opérationnalisation de deux contre-modèles, l'un de la fragilité comme syndrome médical l'autre de la fragilité comme caractéristique non-syndromique. La confrontation empirique de ces opérationnalisations permet de rejeter la fragilité comme syndrome médical. Par ailleurs, les résultats des analyses sur l'opérationnalisation de la fragilité comme syndrome gériatrique ou comme caractéristique non-syndrome n'apparaissent pas concluants, laissant apparemment aux croyants la décision finale. La recherche continue...


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New York wants both the big conventions.

The investment of Mafeking is closer

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The House Ordered an Investigation of His Case.

Washington, Dec. 7.—After an interesting debate of three hours, the

ORAL PRESENTATIONS

When should the clock start ticking? Methodological challenges in the study of physical function and mortality

Authors: Sathya Karunananthan & Christina Wolfson

Background:
Several studies have suggested that poor physical function is associated with increased risk of mortality. However, assessing this association presents several methodological challenges. Changes in physical function occur throughout the lifetime and the rate of change is not constant. In longitudinal studies of aging, participants are most often recruited based on age. At baseline, they present a range of physical functional levels which change during follow-up. Determining when to measure physical function and how to incorporate it into analyses relating it to risk of mortality therefore poses a challenge. Furthermore, in survival analyses a zero time, usually representing disease onset, is needed. Since physical function is not considered a disease state per se, this creates an additional challenge.

Objective:
To review the methodology of studies on the association between physical function and mortality in order to determine if and how these challenges have been addressed. Methods: Twenty-seven studies identified in a recent systematic literature review on physical function and mortality were retrieved and their methodology examined.

Results:
Nearly all studies measured physical function at only one time point and used this time point (usually study baseline) as the zero time for survival analyses. The entry point in observational studies of older adults is arbitrary, related primarily to administrative issues. Anchoring survival time to this date is of questionable relevance to the substantive question. Conclusion: Published research on the association between physical function and mortality has methodological limitations that call into question its validity. Consideration of how to ameliorate these limitations is needed.

Quality of surgical care is inadequate for elderly patients

Authors: V. Martelli, S. A. Fraser, F. Hamadani, I. Vedel, M. Deban, C. Holcroft, M. Monette, J. Monette, S. Bergman

Abstract:
Quality indicators (QIs) set a minimal standard for medical care. The objectives of this study were 1) to assess quality of surgical care delivered to elderly patients, by measuring adherence to QIs, and 2) to determine the association between patient characteristics and QI adherence.

This is a retrospective study of patients ≥65 years, undergoing elective major abdominal surgery between November 2009 and July 2010. Patient characteristics (age, gender, Charlson Comorbidity Index (CCI), functional status) and complications were recorded. Adherence to 7 selected QIs (Table 1) was abstracted from medical records using a standardized tool. Individual QI Pass Rates were calculated (#Subjects passed / #Subjects eligible). In addition, for each subject, a Quality Score was calculated (#QIs passed / #QIs eligible). The association between Quality Score (dependent variable) and patient characteristics (independent variables) was determined using regression analysis.

143 patients were studied. Mean (SD) age was 75.7 (7.1) years, 47.6% were male, median (IQR) CCI was 3 (2-8), and 95.8% were independent. 30.1% of patients developed at least 1 complication, with a 30-day mortality of 2.8%. Individual QI Pass Rates are summarized in Table 1. The median Quality Score was 20.0%. Patient characteristics were equivalent between the low and high quality groups.
When measured by adherence to a specific set of geriatric QIs, a novel, process-based approach, care delivered to elderly patients undergoing major surgery is generally poor, independent of baseline patient characteristics. More research is needed to better understand how QI adherence impacts this population.
Table 1: Individual QI Pass Rates

	Pass Rate	n eligible (missing data)
Delirium Screening	0.0%	143 (9)
Level of Care Documentation	0.7%	143 (1)
Cognitive Assessment	5.1%	143 (5)
Oral Intake Documentation	12.6%	143 (3)
Pressure Ulcers Screening	35.0%	143 (0)
Complete Delirium Work-up	50.0%	32 (0)
Complete Discharge Planning	55.1%	143 (5)

Preoperative physical performance and, complications after robotic surgery in elderly patients with endometrial cancer

Authors: A. Patricia Navarrete-Reyes MD, Johanne Monette MD MSc, Michele Monette OT MSc, José Alberto Ávila-Funes MD MSc, Susie Lau MD MSc, et al

Background:
Endometrial cancer is the most common gynecologic malignancy in elderly women. Age by itself is a poor predicting factor for perioperative complications, while physical performance is associated with survival as well as health and functional status in elderly populations. Therefore, the aim of this study is to examine the association between pre-surgical physical performance and postoperative complications in endometrial cancerpatients that underwent robotic surgery.

Methods:
We performed a retrospective study of patients aged 70 and older sent to a Geriatric Oncology clinic for preoperative evaluation due to endometrial cancer between January 2007, and March 2012. Physical performance was evaluated through gait speed and grip strength. Surgical complications were defined according to the Common Terminology Criteria for Adverse Events. In order to present preliminary data, descriptive statistics, X2 or t-student tests were performed.

Results:
36 women were studied; mean age was 80.5+5.9 years (70-93). Grip strength (kg) mean was 20.74+5.65 (10-34) and gait speed mean (meters/second) was 0.79+0.20 (.37-1.20). Prevalence of postsurgical complications was 58.3% (n= 21), 76.2% of them (n=16) required little or no intervention. In univariate analysis, creatinine clearance (p=.04), ADL score (p=.04) and reported falls in the previous year (p=.02) were associated with postsurgical complications. Physical performance did not show an association with the presence of postsurgical complications.

Conclusion:
Physical performance was not associated with postsurgical complications in this exploratory analysis. The mild nature of complications and early discharge of patients suggest robotic surgery may be an appropriate alternative in elderly patients with endometrial cancer.

Nordic Walking for Geriatric Rehabilitation

Authors: Sabrina Figueiredo, M.Sc, Lois Finch, Ph.D, Gloria Mjiali, B.Sc. PT, Sara Ahmed, Ph.D, Alan Huang, M.D, Nancy E. Mayo, Ph.D.

Background:
There is a need to identify effective interventions to promote walking capacity in seniors. This study was the first to compare Nordic Walking and traditional walking. The primary objective was to estimate the relative efficacy in improving walking capacity of Nordic Walking and Overground Walking for the elderly.

Method:
Single blind, site-stratified, randomized, pilot trial designed to estimate the amount of change with Nordic Walking and Overground Walking. Main outcomes were 6MWT and 5MWT. Explanatory variables were age, sex, number of comorbidities, walking aids, balance, pain and leg function.

Results:
Nordic and Overground Walking participants improved 41 meters on 6MWT and increased their gait speed by 0.21 mls and 0.08 mis, respectively. Nordic Walking effect sizes were moderate for 6MWT (ES = 0.5) and large for gait speed (ES = 0.9). Overground Walking demonstrated moderate effect size for 6MWT (ES =0.5) but small ones for gait speed (E.S =0.4). Relative efficacy, which was obtained from the ratio of Nordic walking and Overground Walking effects sizes, was 1 for 6MWT and 2.25 for gait speed.

Conclusions:
Nordic Walking is 125% more effective in improving gait speed among elderly than Overground Walking.
Trial registered at Clinical Trials.gov under # NCT00805220

Do you see what I see? Modeling Longitudinal Change in Multiple Sclerosis

Authors: Stanley Hum, Susan Scott, Lois Finch, Dr. Yves Lapierre and Nancy Mayo

Background:
MS is the most common neurological disease among young adults. MS evolves over 30 to 40 years with an average age of onset in the mid to late 20s, affecting women 3 times more than men. MS has a clinically heterogeneous disease course with an unknown etiology.

MS database registries have been used to study disease progression by collecting demographic and clinical outcomes such as relapse rates and neurological disability using the Expanded Disability Status Scale (EDSS). Database registries provide sources of data that cannot be captured in any other method and used to confirm published results. A longitudinal database was established at the MS Clinic of the Montreal Neurological Institute during the late 1980s. Currently, there are approximately 5000 patients registered in the database containing 50 000 person years of follow up.

Group-Based Trajectory Modeling (GBTM) is a specialized mixture model that estimates multiple groups within the population. Conversely traditional regression or growth curve models assume the sample all belong to a single group. GBTM was used to describe disease progression patterns in MS. An inception cohort of MS patients (n=1057) with an onset after 1994 (to reflect when diagnosis and treatment changed) was selected for this analysis. A minimum of 5 trajectories of disease progression for a 10-year period from disease onset, using the EDSS as the measure, can be described. Over the 10-year period, the majority of patients remained at their initial EDSS disability level. This is very good news for people with more recently diagnosed MS. GBTM provides a valuable tool for describing longitudinal data permitting the variability in trajectory to be appreciated.

Fatigue shows a complete moderation on illness intrusiveness in multiple sclerosis patients

Authors: Vanessa Bouchard pht, Nancy E. Mayo PhD

Background:
Multiple Sclerosis (MS) is associated with a variety of physical and mental impairments that affect a person's capacity for activity and participation in life's roles. Pharmaceutical and physical therapies are currently used to modify the disease course and to reduce some important impairment such as pain, gait, muscle strength and function in daily activities. Those treatments however do not affect the quality of life directly. Illness Intrusiveness is defined as disease- and treatment-induced disruptions to lifestyles, activities, and interests

(Devins, 2010). Although literature has shown that it predicts health related quality of life, there is very little evidence on what drives it.

Objectives:
To estimate the direct and indirect effects of various MS related impairments on intrusiveness in multiple sclerosis patients.

Participants:
189 individuals with MS diagnosed after 1994 and followed in one of the three MS clinics in the Montreal area were included.

Design: This cross-sectional observational study is a secondary analysis of data collected in 2008 as part of the Gender and Life-Impact study (CIHR grant: Mayo et al.).

Results and Conclusion:
Path analysis revealed that fatigue has a complete moderation effect on illness intrusiveness. The model showed that physical symptoms all have an effect on fatigue but none have a direct effect on the main outcome. Fatigue then affects general health perception, depression and overall physical function that have a direct effect on illness intrusiveness. This preliminary study shows fatigue should really be looked at as it appears to have a major role in how the person experience living with MS.

The Path to Work in People with Multiple Sclerosis

Authors: Pamela Ng, Lois Finch, Stanley Hum, Ayse Kuspinar, Yves Lapierre, Pierre Duquette, Francois Grand'Maison, Nancy Mayo

Background:
Many people with Multiple Sclerosis (MS) are unemployed, often terminating employment prematurely. MS and work have changed dramatically over the past decades indicating the need for a contemporary model of employment. The objective of this study is to estimate the direct and indirect effects of MS functional consequences on work capacity (WC).

Methods:
Two theoretical models and a literature review were used to develop a measurement model. It is being tested using an epidemiologically constructed sample of 189 patients from 3 Montreal area MS Clinics. People over 60 years old, students, homemakers and volunteers were excluded. Rasch analysis was used to create a latent WC variable. Path analysis is being used to link the functional consequences of MS to WC. The starting point for the path is a latent neurological deficit variable. Linear regression was used to rule out variables from the primary path.

Results:
A total of 176 persons were included. Mean age was 42.0, 77% were female and median EDSS was 2.0 (IQR 1.0 to 3.0). Preliminary results suggest that education, gender, and job type have no direct effect on WC or other path variables. Fatigue, physical function (PF), cognition and depression were strong contributors to WC (correlation coefficients of 0.67, 0.57, 0.54 and 0.56 respectively).

Conclusion:
The novelty of this approach is the use of path analysis with Rasch latents for neurological burden, PF and WC. The final path model will serve as a starting point for more focused research on employment in people with MS.

Case Management For Patients With Cognitive Impairment In Primary Care And Community Settings: A Mixed Systematic Review

Authors: V.Khanassov, I.Vedel, h. Bergman, P.Pluye

Background:
Canada is facing a dementia epidemic which urges to take immediate action. Over the past decades case management has emerged as a solution of fragmented care delivered to patients with cognitive impairment. Case management represents a collaborative process of needs assessment, care planning based on evidence-based guidelines and care coordination.

Objective:
To determine the efficacy of case management on clinical outcomes, service use and satisfaction of patients with cognitive impairment in primary care and community settings.

Method:
The systematic mixed review includes qualitative and quantitative studies from 1995 to 2012 searched in MEDLINE, Embase, PsycINFO, CINAHL and CENTRAL.

Results:
The search yielded 2,378 articles from which 19 (17 randomised clinical trials) were selected to be included in the study. The preliminary synthesis shows inconsistent and variable efficacy of case management on clinical outcomes (neuropsychiatric and behavioural symptoms, cognition, mood, function, medication management, quality of life, physical health, social interaction, risk of mortality) and service use (nursing home, hospital and emergency department admission, community service use, length of hospital stay for community dwelling patients with cognitive impairment. We identified the role of various factors (patient characteristics, methodological features of studies) and processes (key structural features of interventions, the level of care involvement) that could explain mixed outcomes.

Conclusion:
The results of systematic review will be used by the Ministère de la Santé et des Services sociaux which is implementing the Alzheimer Plan for Quebec focused on primary care.

Guest Speaker:

RUTH BARCLAY-GODDARD

"Participation"

This presentation will review health related quality of life and its domains , with a focus on participation. A model of participation post-stroke (developed using structural equation modeling) will be presented. This will be followed by descriptions of participation in words and photos by people living with stroke. A description of response shift and how it relates to participation will be discussed. The presentation will end with 'next steps'.

Adding nutrition and anxiety reduction to an exercise-based prehabilitation program

Authors: Li C, Carli F, Stein B, Charlebois P, Liberman AS, Feldman LS

Purpose:
Enhancement of functional capacity before an operation has been termed prehabilitation. A previous RCT comparing two exercise regimens (intense stationary biking vs walking and breathing exercises) showed that despite the intervention, up to a third of patients deteriorated while waiting for surgery. A trimodal prehabilitation intervention was created by adding nutritional supplementation and anxiety reduction to moderate exercise. The purpose was to compare the effectiveness of these prehabilitation interventions in enhancing functional capacity.

Methods:
Patients were evaluated at baseline and one week prior to surgery and were taught the corresponding home-based prehabilitation intervention. Primary outcome was the change in functional walking capacity as measured by the Six-minute walk test (6MWT). Secondary outcomes included change in self-reported physical activity (CHAMPS questionnaire) and in anxiety and depression levels (HADS questionnaire). Data are expressed as mean or median and compared using analysis of variance and Kruskal-Wallis tests.

Results:
41 trimodal, 47 biking, and 44 walking group patients were identified. The median length of the prehabilitation period was respectively 33, 42, and 34 days ($p=0.06$). Over the prehabilitation period, there was a greater improvement in the trimodal group both in functional walking capacity (+40, -7, +11m, $p<0.01$) and self-reported physical activity (+23, +15, +9 kcal/kg/week, $p<0.01$). There were no differences in anxiety (-0.85, -0.56, -0.82, p=NS) and depression scores (-0.98, -0.69, -0.61, p=NS).

Conclusion: A trimodal prehabilitation program was associated with a greater improvement in functional walking capacity and self-reported physical during the prehabilitation period. Nutritional supplementation and anxiety reduction may be useful adjuncts to exercise in an intervention designed to improve functional capacity.

Age-related differences in the Time Course of Backward Inhibition

Authors: Kiran K. Vadaga, Tara M. Gralnick, Claire S. Barnes & Karen Z.H.Li

Background:
Backward Inhibition (BI) refers to the suppression of a recently executed task set to facilitate the switch to another task (Mayr & Keele, 2000). In the current experiment, by using a Word Recognition Masking (WoRM) task, we examined 1) whether the magnitude of BI changes as a function of response in the previous task, and 2) whether there are age-related differences in the time points at which BI is measured. In the WoRM task, 22 young (age: 18-35 years) and 22 older adults (age: 60-75 years) distinguished between exemplars from two categories (A, B) by key press, and withheld responses to exemplars from a third category (C). List words were intermixed, appearing either singly or with flankers (i.e., irrelevant information). All critical BI trials included flankers that were targets in the previous trials. They were compared against the other flanked control trials. To examine the magnitude of BI as a function of response in the previous task, BI trials following List C (no-response) words were compared against BI trials following list A and B words (response). To examine the time course of BI, displays were followed by a masking stimulus (asterisks) of variable duration (100, 400 or 800 ms). No BI effect was observed in either age group following no-response trials. On response condition trials, robust BI effects were observed in young adults, but older adults had difficulty sustaining BI for longer durations. These findings shed light on the locus of age-related differences in BI.

What we know about motor learning during social interaction via behavioral and neuroimaging evidence- Implications for Geriatrics

Author: Ovidiu Lungu

Background:
Motor learning is a class of behavior which has to a large extent been neglected in research investigating the mechanisms by which social environment influences our actions. Given the recent discovery of the mirror neuron system and the prevalence of social interactions during many everyday motor activities the absence of studies dealing with social aspects of motor learning is even more evident. The current presentation outlines the results of previous behavioral and neuroimaging experiments, as well as a current research program dedicated to the investigation of the role played by direct social interactions on our ability to acquire and express motor skills. This new area of research may provide new insights regarding the interaction between aging and the social context in motor learning, as well as potential practical applications concerning the role of social context in locomotor rehabilitation (e.g. group versus solo training regimens) in geriatrics and in long-term care.

Predicting Outcomes of Short-term CBT in a University Teaching Unit: Comparisons of Outpatients with Anxiety, Depression and Psychosis in the MUHC CBT Unit

Authors: Gail Myhr MD,CM, Jennifer J. Russell PhD, Marie Saint-Laurent MD, Vicki Tagalakis, MEd, Dominique Belisle MD, Fatima Khodary MSc, Kia Faridi MD

Background:
The Suitability for Short-Term Cognitive Therapy (SSCT) rating procedure (Safran et al. 1993) has predicted CBT outcome in anxious or depressed patients, but its relevance to the assessment of patients suffering from psychosis has not previously been examined.

Method:
Three clinical samples with psychosis (n = 56), depression (n = 93) and anxiety (n = 264) underwent short-term CBT in the MUHC CBT Unit (mean number of sessions=16, SD=11). CBT was administered by psychiatry residents (50%), non-resident trainees (30%), and staff psychiatrists or psychologists (20%). Demographic, clinical and suitability variables were assessed as potential predictors of drop-out and success in completed therapy.

Results:
All SSCT items were lower for psychosis than anxiety or depression, and lower for drop-outs than for completers. Drop-out and success rates were similar across groups, although the magnitude of symptom reduction was less in the psychosis group. Drop-out was predicted by unemployment and by low scores on the "responsibility for change" SSCT item across diagnoses. In the psychosis group only, drop-out was predicted by SCL-90 hostility scores. Success of completed therapy, as measured by the Reliable Change Index, was predicted by higher baseline level of SCL-90 agoraphobic anxiety and SSCT responsibility for change scores. Trainee therapists did less well with anxiety patients, but equally well with mood or psychotic disorders.

Conclusion:
Fostering acceptance of responsibility for change may improve both treatment retention and success. Attention to hostility early in therapy may reduce drop-out in psychotic patients. Higher levels of agoraphobic fear appear to be associated with success; perhaps reflecting the centrality of behavioural interventions in psychosis and anxiety alike. Trainees can be encouraged to pick up cases with psychosis early in their careers.

Bayesian methods of design and analysis

Author: Alison Sinclair, PhD

Background:
An estimated 5000-8000 rare diseases collectively affect approximately 10% of the population. Some can be studied by established methods, while others have a patient pool too small for precise estimates of treatment effect or adequate power on hypothesis testing. Bayesian inference has been proposed as an alternative approach to obtaining estimates of treatment effect. In a literature search for studies that applied Bayesian methods to the investigation of treatments for rare diseases, I identified six, including post-hoc re-analyses of previous studies, methods papers with simulation of data, and a Phase II clinical trial of a rare sarcoma. I included one paper describing Bayesian adaptive randomization in a trial of an uncommon subtype of a more common disease. The authors' common interest was in using Bayesian methods to reduce the needed sample size by synthesizing prior with current information, by using Bayesian hierarchical analysis to enable borrowing of strength across disease subtypes, or by using Bayesian probabilities in ongoing monitoring of study endpoints according to preset stopping rules. Bayesian adaptive randomization was also used to increase assignment probability to the best-performing treatment. More effort is required in the planning and design, as Bayesian methods require assumptions to be quantified and made explicit. Concerns around small numbers and heterogeneity cannot be evaded, as the results of analyses involving small quantities of data may be overly influenced by the prior. Nevertheless, Bayesian analysis offers flexibility in synthesizing information, as well as a formal framework for discussion of the threshold of certainty and the quality of evidence.

Harmonization of patient report and objective measures of cognitive deficits: a Rasch Analysis

Authors: Lisa Palladini MSc(c), MJ Brouillette M.D., Lesley Fellows M.D., PhD, Nancy Mayo PhD

Background:
Combination antiretroviral therapies have changed the prognosis of the Human Immuno-deficiency Virus (HIV). However, neurological disorders, particularly cognitive manifestations, remain a concern. Unless routine cognitive screening is in place in HIV clinics, clinicians are usually first confronted by patient report, of which the latter has been questioned in terms of clinical significance. Consequently, the objective of this study is to improve precision of measurement of cognitive functioning in HIV+ individuals by creating a calibrated measure of cognition that includes items from neuropsychological testing, as well as items of patient self-report. More specifically, the goal is to estimate the extent to which items of patient reported cognitive difficulties and items from direct measures of cognition form a hierarchical uni-dimensional construct by using Rasch modeling.

Methods:
A convenience sample of 76 patients drawn from the MUHC Immunodeficiency Clinic was measured cross-sectionally. Patients completed paper and pencil tests, a computerized battery, and self-report questionnaires, all aimed at measuring cognition.

Results:
Preliminary analyses show that a measure of the latent construct that we labeled "cognitive ability", which combines patient self-report as well as objective measures, was created with good statistical fit to the Rasch model with inclusion of 27 of the original 78 items. The measure covers 6 logits of the theoretical construct range, with an excess of items too easy for this sample, where items range from -2.5 to +3.9 (target is -4 to +4). The measure is now uni-dimensional, and items are ordered hierarchically in terms of ability of cognitive functioning.

Conclusion:
A measure such as this is the first of its' kind, and can have a profound impact on the field of HIV and the measurement of cognition. We now have the opportunity to understand mathematical relationships between patient reported and directly measured deficits.

What is in a total score using Rasch Measurement theory to inform the interpretation of the total score in measures commonly used in health science?

Authors: Skye Barbic, Dr.Susan Bartlett, Dr. Nancy Mayo

Background:
Rasch models are commonly used in the health sciences as a means of analyzing data from assessments to measure change in health states. Rasch Measurement Theory (RMT) is an iterative mixed-methods approach of identifying models that characterize data and highlight anomalies that present problems to model fit (Andrich, 2012).

Purpose:
The purpose of this study is to measure the extent to which RMT can detect anomalies in commonly used measures in rehabilitation science and inform the interpretation of the total scores produced.

Methods:
Data came from 8 questionnaires that were administered to 406 caregivers of stroke survivors at four times during the first caregiving year. The Rasch unidimensional measurement model (RUMM 2030) was used to examine item structure and function of each measure over time.

Results:
An examination of the complete data set using a RMT revealed several anomalies in the data including the inability of participants to answer reverse-item scores as expected, poor targeting of 7 of the 8 questionnaires used, several instances of differential item functioning, and extreme participant scores that significantly impacted model fit of each measure over time.

Conclusion: In keeping with the Rasch Paradigm (Andrich, 2012; Andrich, 2004), in order to avoid thetrade-off of future manipulations of an attribute for manipulations of a measurement instrument, there is a need for a systematic approach to verify a measure's ability to perform as expected. This study revealed anomalies in 7/8 measures and shed light into solutions to pursue and explain the anomalies experimentally. RMT provided evidence of the theoretical and statistical requirements to measure change in this population and has potential to be used as a method to interpret total scores across the health sciences.

Sources of variation in the use of special education programs in Canada

Authors: Victoria Tang, BSc. (OT), MSc. Candidate, Nancy Mayo, BSc. (PT), MSc., PhD., Lyne Nadeau, MSc., Ingrid Sladeczek, PhD., Laurie Snider, BSc. (OT). MSc., PhD

Background:
Children with disabilities have complex and individual needs as none of them have the same portrait of impairments. Special schooling is available to meet some of these needs but access varies across province and type of regions. As a first step in a broader program on outcomes of special needs children, this project was designed to estimate, among pre- and school-aged children with disabilities, the physical, cognitive, sensory and emotional impairments, and environmental factors that are associated with schooling in special education programs in Canada. Data of children aged 4-8 years old with disabilities were obtained from three waves of the National Longitudinal Survey of Children & Youth from 2004 to 2009. The study population represents about 3,700 Canadian children with disabilities across Canada. Parent reported disability at age 4-5 and schooling situation at age 6-8. At the population level, about 8.3% of children have at least one disability and approximately 20% of them are in special education programs. The results indicate that children in special schooling have many disabilities, but there is also a considerable number who are in other schools (about 80%). Both of these settings provide advantages and challenges to meeting the needs of children.

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THE NEWS OF THE WEEK

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The House Ordered an Investigation of His Case.

Washington, Dec. 7.—After an interesting debate of three hours, the

POSTERS

Poster 1

Muscle strength and lean mass: What do we measure?

Authors: Barbat-Artigas Sebastien, Plouffe Stephanie, Pion Charlotte H, Aubertin-Leheudre Mylene

Objective:
To explore the relationship between muscle strength measurements (handgrip (HGS) and knee extension strength (KES)) and local and overall distribution of lean body mass in men and women aged 50 years and more.

Methods:
Ninety-one individuals (53 women, 38 men) aged between 50 and 75 years were recruited. Overall and regional measurements of lean mass were made by DXA. Appendicular lean body mass index (App LBMI) was defined as the appendicular lean body mass divided by height squared. HGS and KES were measured by dynamometry and 1 RM.

Results:
In women, HGS was significantly correlated with all muscle mass measurements ($r=0.43$-0.51, $p<0.05$), but not with App LBM!. Furthermore, KES was significantly correlated with all muscle mass measurements ($r=0.44$-0.62, $p<0.05$), as well as with App LBMI ($r=O.44$, $p<0.05$). In men, HGS was significantly correlated with all muscle mass measurements ($r=0.30$-0.60, $p<0.05$), except lower extremities muscle mass, and with App LBMI ($r=O.56$, $p<0.05$). Furthermore, KES was significantly correlated with all muscle mass measurements ($r=0.44$-0.57, $p<0.05$), except lower extremities muscle mass and App LBM! Finally, the best predictor of App LBMI was HGS in men and KES in women.

Conclusion:
App LBMI is presently used to identify sarcopenic individuals and HGS is often used as a clinical proxy for App LBMI in both men and women. Our results show that this approach is valid in men, while KES appears to be a better predictor of App LBMI than handgrip strength in women, suggesting that a sex-specific tool may be used to identify sarcopenic individuals.

Poster 2

Insulin resistance is associated with muscle mass and sources of protein intake in elderly participants of the Quebec Longitudinal Study on Nutrition and Aging (NuAge)

Authors: Jose A Morais, Joane Matta, Nancy Mayo, and researchers form the Secondary NuAge Study on insulin resistance and sarcopenia

Background:
Aging is associated with a gain in fat mass and loss of lean tissue, mainly muscle, which has been related to insulin resistance. Dietary protein intake is considered an easy approach to combat loss of muscle mass, but contrarily to plant source of proteins, animal proteins may increase the risk of insulin resistance.

Objective:
To elucidate the complex interrelationships of dietary protein intake, muscle mass and insulin resistance. Participants: 441 non-diabetic, 68- to 82-years-old men and women of the Quebec Longitudinal Study NuAge with complete datasets.

Methods:
Muscle mass index and % body fat were derived from DXA and BIA. Insulin resistance was based on the HOMA-IR, physical activity on the PASE questionnaire and protein intake and sources on three non-consecutive 24-h food recalls. Path analysis of a proposed model including age, sex, number of chronic diseases and smoking was tested with the NuAge dataset and a final model was developed.

Results:
Significant, direct positive associations were observed for HOMA-IR with MMI (ß=0.42; 95%CI: 0.24; 0.6) and % body fat (ß=0.094; 95%CI: 0.07; 0.11), and for physical activity with muscle mass (ß=0.0028; 95%CI: 0.001; 0.004), but not for animal protein intake with MMI (ß=0.019; 95%CI:-0.006; 0.044) or HOMA-IR (ß=0.092; 95%CI: -0.03; 0.048). Significant, direct negative associations were observed for plant protein intake with MMI only (ß= -0.068; 95%CI: -0.13; -0.003) and for physical activity with fat mass (ß= -0.01; 95%CI: -0.021; 0.0). Significant, indirect associations were observed negatively for plant protein (ß= -0.07; 95%CI: -0.1; 0.0 ;) and positively for animal protein (ß=0.0321; 95%CI: 0.01; 0.05) with HOMA-IR mediated through MMI and fat mass. Our final model fitted with our data (Chi-Square = 4.83).

Conclusions:
Interestingly and contrarily to expectations, muscle mass and HOMA-IR were positively associated in these elderly participants. Results suggest that plant protein is beneficial for reducing insulin resistance but at the expense of muscle mass loss whereas the reverse stands for animal protein. Physical activity has significant beneficial effects in body composition. These findings can shed some light on the directions to promote healthy aging through optimization of protein diet and physical activity.

Poster 3

Assessing longitudinal body fat change in a cohort of patients with advanced cancer

Authors: Christopher Fraser, Stephanie Chevalier, Jessica Murphy, Bruno Gagnon

Background:
The Cancer-Anorexia Cachexia Syndrome (CACS) is defined by an ongoing loss of skeletal muscle mass, with or without loss of fat mass.

Objective:
To determine the number of trajectories of fat change in a cohort of patients with newly diagnosed advanced cancer. Hypothesis: It is expected that there will be multiple groups of patients demonstrating different rates and directions of fat change.

Methods:
Patients were recruited from the Jewish General, Montreal General and Royal Victoria Hospitals. Fat mass was estimated from retrospective computed tomography scans. Group-based trajectory modeling was used to assess changes in fat over time. Results: The sample population is comprised of 101 patients [67 males, age 65.4 ± 1.5, BMI 24.9 ± 0.6 kg/m2 and 34 females, age 63.4 ± 1.9, BMI 24.0 ± 1.0 kg/m2]. Females were found to have significantly less visceral fat tissue (surface area, cm2) ($p=.01$), and significantly more subcutaneous fat than males ($p<.05$). Mean whole body fat free mass was 51.4 ± 1.1 for males, and 37.2 ± 0.9 kg for females. Females had significantly less skeletal muscle tissue ($p<.01$). These findings are typical but it remains to be shown whether these and/or total fat relate to CACS-induced fat loss.

Conclusion:
We anticipate that the trajectory analysis will provide insight into both the pattern and extent of body fat change and the characteristics of patients comprising each trajectory group, and as such would be valuable in the effort to reduce the impact of wasting in CACS.

Poster 4

Relationship Between Vitamin D Intake And Muscle Characteristics On Physical Incapacities In Postmenopausal Women

Authors : Jean-Philippe Leduc-Gaudet [1,3], Charlotte H. Pion [1,3], Sébastien Barbat-Artigas [1,2,3], Mylène Aubertin-Leheudre [1,2,3]

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[2] Institut Universitaire de Gériatrie de Montréal
[3] Département de kinanthropologie, Université du Québec à Montréal

Introduction:
Many studies suggest that low doses of vitamin D (<400IU/d) seem to increase health problems (osteoporosis, etc.). Numerous studies have demonstrated that high doses of vitamin D seem to reduce risk of falls (700 to 1000IU/d; Bischoff-Ferrari et al., 2009). Indeed, several authors have observed benefits on physical incapacities associated with a high dose of vitamin D (Bischoff-Ferrari et al., 2009).

Objective:
The purpose of this study is to examine the relationship between low levels of vitamin D (<400IU/d) intake on muscle characteristics and physical incapacities in postmenopausal women.

Methods:
Seventy-four postmenopausal women were selected from a database according to the dietary intake of vitamin D. Sixty of them have an intake of vitamin D less than 400IU per day. The upper tertile (n=20; age:64±6yrs / BMI:26±5kg/m²) and the lower tertile (n=20; age:62±7yrs / BMI:27±4kg/m²)) were compared for the functional capacities and the muscles characteristics. P≤0.05 is considered as significant (SPSS 17.0).

Results:
We found no significant differences between upper and lower vitamin D consumption tertiles for muscle characteristics & physical incapacities. In addition no significant correlation has been observed between vitamin D and muscle strength.

Conclusion:
It seems that the level of vitamin D lower that the recommended dietary allowance (RDA: 400IU/d) have no influence on muscle characteristics and physical incapacities in young & autonomous postmenopausal women. More studies are needed to determine the optimal dose for preventing the loss of mobility.

Poster 5

Testing for B12 Deficiency in the Elderly

Author: Henry Olders

Vitamin B12 deficiency is believed to affect around 20% of seniors. As this condition can cause memory impairment and even dementia, which becomes irreversible if not treated quickly, diagnosing and treating suspected B12 deficiency quickly and accurately is very important. Unfortunately, the usual B12 blood level test can sometimes be inaccurate, and thus a more reliable test, methylmalonic acid, is often requested to diagnose B12 deficiency. Over a number of years, it was observed that tests for methylmalonic acid that were requested for seniors both at 8te. Anne's and earlier at the Jewish General Hospital, had never come back as abnormal, even for those patients who clearly had B12 deficiencies as detected by other means. Even from a statistical point of view, one could have expected at least 20% to be abnormal. In comparing the reference range for normal from the laboratory doing our methyl malonic acid determinations, with the reference range usually used in research, it became clear that there was a large discrepancy. When this was corrected, methyl malonic acid tests finally became useful, not only to 8te. Anne clinicians, but to all the McGill and University of Montreal affiliated hospitals as well. Additionally, in reviewing older test results, a strong correlation was discovered between elevated methylmalonic acid levels and mortality. This finding warrants further investigation.

Poster 6

Défis méthodologiques rencontrés lors d'une analyse des différences entre les mesures des forces musculaires au sein des sujets diabétiques de la cohorte NuAge.

Auteurs : El Rahi, Berna, M.Sc., Ph.D. (cand.)[1], Shatenstein, Bryna, Ph.D., P.Dt.[1, 2], Morais, José, M.D.[3]

[1] Département de Nutrition, Université de Montréal;
[2] Centre de recherche, Institut Universitaire de Gériatrie de Montréal;
[3] Division of Geriatric Medicine, McGill University

Dans le but de déterminer si la qualité alimentaire joue un rôle dans la prévention du déclin de l'autonomie fonctionnelle chez les personnes âgées diabétiques de la cohorte NuAge (n=243, 40% femmes, recrutés en 3 groupes d'âge: 70±2ans; 75±2ans; 80±2ans), les forces de préhension, quadriceps et biceps sont considérées des variables intermédiaires dans la relation stipulée. Lors de l'analyse de ces 3 forces musculaires (FM), on a remarqué que ces mesures n'évoluent pas en parallèle. Par exemple, un gain important de la force de préhension (FP) pourrait être accompagné d'une perte importante de la force de biceps (FB). Afin de mieux comprendre ces observations, plusieurs analyses ont été réalisées. D'abord chacune des forces a été examinée pour détecter des tendances spécifiques. Ensuite, les différences de FM furent examinées à travers des ANOVA selon des critères de diagnostic du diabète et en fonction d'un indice de fragilité créé à partir de 5 tests de fonctionnement physique. Finalement, des différences de FM en fonction des caractéristiques socio-démographiques étaient explorées. Aucune différence significative n'était trouvée entre les changements des FM et le critère de diagnostic du diabète ou l'indice de fragilité. Toutefois, chez les femmes seulement, le pourcentage du changement de la FB était significatif entre les 3 groupes d'âge (p=0.037), avec les femmes les plus âgées (78 à 84ans) ayant perdu le plus de la FB (-7% contre -1% chez les plus jeunes). L'exploration d'autres aspects de fragilisation et des erreurs systématiques dans la mesure des FM constituent les prochaines étapes d'analyse.

Poster 7

Effect of Aging on Multisensory Integration in Production and Retention of Bimanual Coordination

Authors: PION Charlotte H., ALBARET Jean-Michel & TALLET Jessica

Background:
Recent studies revealed that psychomotor performance of elderly improve in presence of multisensory information, a phenomenon called "multisensory integration".

Objective:
The aim of this study is to test whether the production and retention of bimanual coordination can improve with multisensory integration in elderly.

Methods:
Eight elderly (5 women; 69±5 years) and eight young adults (5 women; 23±1 years) had to tap the two keys "Ctrl" on a keyboard to synchronize with a metronome and then to maintain the coordination when the metronome was withdrawn (Continuation). Three Modalities were presented (visual, auditory and multimodal) and three Coordination modes were required (in-phase, anti-phase and intermediary). ANOVA Age x Modality x Coordination x Continuation was conducted on the Root Mean Square Error that represents the accuracy and stability of the coordination ($p<0.05$). T-tests were also performed ($p <0.01$).

Results:
ANOVA and t-tests indicated that RMSE of the anti-phase and intermediary coordination modes were lower in auditory and multisensory information conditions as compared to visual one but only for elderly. The RMSE was lower in multisensory condition for elderly producing in-phase coordination. The RMSE decreased between synchronization and continuation only for elderly in presence of visual information.

Conclusion:
The elderly benefited from multimodal information as well as auditory Information to improve the simplest coordination. Multisensory integration could allow elderly performing simple coordination in autonomy.

Poster 8

Effects of Age and Cognitive Load on Conflict Adaptation During Finger Sequencing Performance

Authors: Y. Korotkevich, K. Trewartha, V. Penhune, K. Li

The purpose of the study was to examine the effect of cognitive load on motor reprogramming using a dual-task paradigm. We propose that in the face of conflict, both executive control and motor control mechanisms are involved in the process of reprogramming well-learned motor behaviours, and these two mechanisms become more interconnected with increasing age. To assess motor reprogramming, 19 young adults and 15 older adults overlearned a sequence of key presses in an initial Practice Phase of the experiment. In the Test Phase, occasional deviations of the practiced sequence were introduced to assess motor reprogramming ability. A Serial 7s subtraction test was used as the cognitive load. A 3-D motion capture system was used to parse finger movements into planning and motor execution times. It was hypothesized that under cognitive load, participants' motor responses would be slowed down, and they would lose their ability to speed up their motor execution times. When key press responses were parsed into kinematic responses, the results showed that under both attention conditions, when presented with a deviation from a learned sequence, young adults spent more time planning their movements. Young participants were able to speed up their execution time on the violation transitions under single-task conditions; however, they lost this ability under dual-task conditions, resembling older adults. These findings suggest that cognitive capacity, reduced in the case of older adults or young adults under divided attention conditions, influences the ability to flexibly adapt to conflicting conditions, as expressed by motor execution times.

Poster 9

Effect of socio-economic status on psychological health in premature acute coronary syndrome

Authors: Terence Lee, Meytal Avgil, PhD, Louise Pilote, MD, PhD, MPH

Background:
The determinants of psychological health in the premature (18-55 years) acute coronary syndrome (ACS) population are poorly understood. We investigated whether socio-economic status (SES) can predict psychological health in premature ACS patients.

Methods:
Data from baseline questionnaires and chart reviews were collected from the ongoing PRAXY study. 899 premature ACS patients were recruited from hospitals across Canada, with 650 (72.3%) men and 249 (27.7%) women. SES was defined by household income. Anxiety and depression were used to assess psychological health, and was determined at the time of hospitalization with the Hospital Anxiety and Depression Scale. Multivariable logistic regression analyses were used to assess SES in relation to psychological health after adjusting for potential confounders. Age, sex, marital status, cocaine use, alcohol use, hypertension, diabetes, and past angina or myocardial infarction were included as covariates.

Results:
The mean age was 48.0 for both men and women. Compared to male patients, female patients had lower SES ($p<0.001$) and were more anxious ($p<0.001$). Male sex was negatively associated with anxiety (OR 0.58, 95% CI 0.39-0.84). Higher income (more than 100K), relative to lower income (less than 50K), was negatively associated with anxiety (OR 0.47, 95%CI 0.29-0.77), and after stratifying by sex, the association was seen in men only. Higher income was also negatively associated with depression (OR 0.43, 95%CI 0.24-0.75), an association also seen in both men and women after stratifying by sex. Having a past myocardial infarction or angina was positively associated with anxiety (OR 1.9, 95% CI 1.20-3.01). This association was found to be significant in women but not in men. Hypertension was associated with anxiety in men only (OR 1.73, 95% CI 1.14-2.61). Diabetes was positively associated with depression (OR 1.90, 95% CI 1.13-3.17), and the association was significant in women but not in men.

Conclusion:
In premature ACS, men have higher SES and are less anxious. Lower SES was strongly associated with depression and anxiety in men, and was strongly associated with anxiety in women. Further investigations are needed to explain these associations and subsequently identify populations at risk of poorer cardiovascular prognosis.

Poster 10

Time course of deletion-type inhibition in young and older adults using a sequential updating task

Authors: Mervin Blair, Kiran K. Vadaga, Michael Dalili, & Karen Z. H. Li

The Inhibition Deficit Hypothesis <Hasher, Zacks, & May, 1999) posits that the ability to delete/suppress no longer relevant information declines with age, and as a consequence, negatively impacts on higher order abilities. However, research on whether this deletion-type inhibition is reduced in older adults remains inconsistent. A drawback and possible confound in extant research may be the predominant assessment of inhibitory functioning at a single time point. Research on the time course of inhibitory processes is limited and in some cases mixed. In this study, we aimed to examine whether there were age differences in the time course of deletion-type inhibition in a sequential updating paradigm. Older and younger adults performed a sequential task in which they monitored for a learned sequence of targets among trials of randomly ordered stimuli. We investigated the time course of deletion4ype inhibition by examining performance on repeated presentations of no-longer relevant information (prior targets) following delays of 1000 to 3000 ms. Using a fine-grained analysis in which individual response times were sorted, split into 16 time bins, and compared across critical and control trials, we found that the onset of deletion-type inhibition in older adults was delayed compared to younger adults. Additionally, we obtained evidence suggesting that inhibitory performance in the sequential task related to working memory updating processes in the n-back task. Together, these findings indicate that deletion-type inhibition is not absent, but delayed in older adults, and emphasizes the utility of examining age effects in cognitive processes across a larger temporal range.

Poster 11

Subglottic Secretion Drainage Endotracheal Tube for Prevention of Ventilator-Associated Pneumonia

Authors: Xuanqian Xie, Ioana Nicolau, Maurice McGregor, and Nandini Dendukuri

Background:
Ventilator-associated pneumonia (VAP) is a common nosocomial infection. A modified endotracheal tube (ETT) that allows subglottic secretion drainage (SSD) may reduce incidence of VAP.

Methods:
A systematic review of articles comparing SSD ETT to standard ETT was conducted. Risk of bias in randomized controlled trials (RCTs) was determined using a tool suitable for non-medical RCTs, where double-blinding is infeasible. Efficacy of SSD ETT for prevention of VAP was estimated using Bayesian meta-analysis. Net budget impact of routine use of SSD ETT and its cost-effectiveness compared to standard ETT were estimated.

Results:
We identified 14 RCTs of the efficacy of SSD ETT. Most studies were judged to have a risk of bias, particularly due to poor reporting. Overall, SSD ETT significantly reduced either the frequency of VAP or of early onset VAP in 12 of 14 studies. The pooled risk ratio (RR) for the decrease in frequency of VAP was 0.53 (95% Credible Interval (CrI) 0.43, 0.64). Sub-group analysis of 8 RCTs using the Hi-Lo Evac tube gave similar results (RR 0.59 (95% CrI 0.44, 0.78)). We estimated that using SSD ETT would avoid 20 VAP cases (95% CrI 15, 24) in 500 target patients per year and potentially save $100900 (95% CrI $36140, $193800) annually for the McGill University Health Centre.

Conclusion:
Our analysis suggests SSD ETT is efficacious for prevention of VAP and could lead to substantial cost reduction. However, it cannot be excluded that this benefit might be due to co-interventions.
More methodologically rigorous trials are desirable.

Poster 12

Sex Differences in the Psychosocial Profile of Young Men and Women Hospitalized with ACS

Authors: Pelletier, Roxanne, PhD, Bacon, Simon L., PhD, Lavoie, Kim L., PhD, Norris, Colleen, RN, PhD, Rabi, Doreen, MD, FRCPC, MS, Pilote, Louise, MD, MPH, PhD

Background:
The literature about psychosocial factors in relation to acute coronary syndrome (ACS) has grown significantly over the past few decades. However, little is known about the distinct psychosocial profiles of young men and women hospitalized with ACS.

Methods:
To date, 853 participants have been recruited into the ongoing observational GENESIS PRAXY (Gender and Sex Determinants of Cardiovascular Disease: From Bench to Beyond Premature Acute Coronary Syndrome) study, started in January 2009. Psychosocial data of young (< 55 years) men and women hospitalized for ACS across Canada, one US and one Swiss site were collected through self-administered questionnaire and chart review.

Results:
In the present sample, women had significantly higher depressive (mean HADS-D score = 5 ± 4.20) and anxiety (mean HADS-A score = 8 ± 4.54) symptoms in the two weeks preceding the ACS, when compared to men (4 ± 3.94, $p < .001$, and 6 ± 4.37, $p < .0001$, respectively). Generally, women also reported having a worse psychosocial profile compared to men, including: higher level of stress at home, a lower level of confidence in managing their stress, a poorer health-related quality of life, less perceived social support, a lower personal income, a higher level of limitation of enjoyment due to chest pain, and a higher number of hours spent doing housework. Women were also less often employed; they reported working fewer hours per week then men and were less often the primary earner in the family. There were no differences between men and women regarding marital status, and work-related stress level.

Conclusion:
Young men and women hospitalized for ACS presented with a different psychosocial profile, with women being generally worse off than men. This profile, such as higher levels of depression and anxiety symptoms, may impact presentation, process of care, and outcomes. Such differences may demand a sex-based approach to care.

Poster 13

Title: Sex Differences in Atypical Presentation in Young Acute Coronary Syndrome Patients

Authors: Sylvie Leung Yinko, Nadia Khan, Colleen Norris, Meytal Avgil Tsadok, Louise Pilote

Background:
Atypical presentations of acute coronary syndrome (ACS) are often unrecognized, particularly in women and younger patients. This under-recognition is associated with delays or missed ACS diagnosis and increased mortality to improve ACS identification in these groups, we characterized prodromal and acute symptoms in young women and men with atypical presentations of ACS.

Methods:
We used data from GENESIS PRAXY (GENdEr and Sex DetermInantS of cardiovascular disease: from bench to beyond PRemature Acute Coronary SYndrome), an ongoing observational study starting January 2009 of patients 55 years and younger hospitalized for ACS in 23 Canadian, 1 US, and 1 Swiss sites. Atypical presentation of ACS was defined as the absence of any chest pain symptoms or chest pain of low intensity. Symptom presentation for the prodromal and acute phases of ACS was determined in all patients during hospitalization for ACS using the MAPMISS (McSweeney Acute and Prodromal Myocardial Infarction Symptoms Survey) validated questionnaire.

Results:
Of the 851 patients (mean age 48 years), 22.1% of women and 15.1% of men reported atypical symptoms for ACS (p=0.02). In the prodromal phase, the most common symptoms in both sexes included: tiredness, anxiety, sleep disturbances, indigestion, and arm pain. Women more often reported arm weakness (39% vs. 16%, p=0.002), sensations of heart racing (40% vs. 23%, p=0.04) and breathing difficulties (22% vs. 9%, p=0.03) compared to men. For acute atypical symptoms, the most common complaints in both sexes included generalized weakness, left arm and/or shoulder pain, cold sweats, hot flushes, back and/or between and/or under the shoulders pain and nausea. Women with atypical presentation were more likely to report vomiting (21% vs. 9%, p=0.03) and weakness (48% vs. 28%, p=0.02).

Conclusion:
Atypical ACS presentation was more common in women than men of young age. Women with atypical ACS presentation had distinguishing features of prodromal and acute ACS symptoms. Care providers and the public need to be alerted to these prodromal symptoms and sex differences in atypical ACS presentation.

Poster 14

An Extended Exercise Rehabilitation Program Post Hip Fracture Improves Patients' Physical Functioning: A Systematic Review and Meta-Analysis

Authors: Mohammad Auais MSc PT*, Owis Eliyyan MSc PT, Nancy Mayo PhD PT

Background:
Although the principle goal of hip fracture management is a return to pre-event functional level, most survivors fail to regain their former autonomy. One of the most effective strategies to mitigate thefracture's consequences is exercise.

Purpose:
To review the reported effect of an extended exercise rehabilitation program offered beyond the regular rehabilitation period on improving physical functioning for patients with hip fractures.

Sources:
The Cochrane Bone, Joint and Muscle Trauma Group, the Cochrane Central, PubMed, CINAHL, PEDro, EMBASE, and reference lists of articles were searched from inception to October, 2010.

Study Selection: Included were all randomized controlled trials comparing extended exercise programs to usual care for community dwelling after hip fracture.

Data Extraction and Synthesis:
Two reviewers conducted each step independently. The data from included studies were summarized and then pooled estimates were calculated for nine functional outcomes.

Results:
Ten articles were included in the review and eight in the meta-analysis. The extended exercise program showed small-modest effect sizes which reached significance for knee-extension strength for affected and non-affected sides 0.46 (CI 95%: 0.2-0.6) and 0.45 (CI 95%: 0.16-0.74) respectively, balance 0.29 (CI 95%: 0.07-0.51), fast gait speed 0.52 (CI 95%: 0.18-0.85 p=0.002), and physical performance-based tests 0.53 (CI 95%: 0.27-0.78).

Conclusions:
To our knowledge this is the first meta-analysis to provide evidence that an extended exercise rehabilitation program for patients with hip fractures has a significant impact on various functional abilities.

Poster 15

Calling Pain Pain: What Should We Ask MS Patients about Pain Severity?

Authors: Shahnaz Shahrbanian[1], Nancy E. Mayo[1, 2], Pierre Duquette[3], Ayse Kuspinar[1], Shang Yuan Teng[1]

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[2] Division of Clinical Epidemiology, McGill University Health Center, Royal Victoria Hospital, Montreal, Canada
[3] Hôpital Notre-Dame du CHUM, 1560 Sherbrook Street East (H-3135), Montreal, Quebec, Canada, H2L 4K8

Background:
Pain is a common symptom in individuals with multiple sclerosis (MS). Despite of advances in pain management, the accurate assessment of the clinical pain intensity continues to be a difficult task to both researchers and clinicians. Although several scales are currently used to assess the intensity construct, it remains unclear which of these provides the most precise, replicable, and predicatively valid measure. Pain is a common symptom in individuals with multiple sclerosis (MS) and needs to be routinely assessed and treated. Despite of advances in pain management, the accurate assessment of the clinical pain intensity continues to be a difficult task to both researchers and clinicians. Although several scales are currently used to assess the severity construct, it remains unclear which of these provides the most precise and predictively valid measure. Typically in research pain severity is queried on a 0 to 10 numerical rating scale (NRS). Researches indicate that a single rating of pain severity is not adequately reliable or valid as a measure of pain. So, usually four different pain values are rated: current, lowest, highest and average. All of these values are relevant both for patient management and research but for research having 4 values poses logistical and statistical difficulties. The purpose of this study, therefore, was to identify the extent to which these 4 pain rating scales capture sufficiently unique information as to warrant them all to be included in standard pain rating. In particular, does rating of average pain, contribute information over and above what is provided by lowest and highest pain?

Methods:
Study population was a centre-stratified random sample of patients registered at the 3 MS clinics in Montreal comprising 139 women and 49 men. Patients were asked to rate their pain severity on 0-10 NRS, with 0 indicating 'no pain' and 10 indicating 'pain as bad as it could be'. Using 4 separate scales, patients rated their worst, least and average pain over the past week, as well as their current pain at the time of evaluation. Participants also completed the 36-item Short Form Health Status Survey (SF-36) which is a measure of health related quality of life and considered to be as a reference of valid and reliable measure. Composite pain intensity scores were created for possible combinations of the single pain ratings by computing their mean. Bivariate correlation coefficients were then calculated between these composite scores, individuals rating scales, and SF-36.

Results:
Of the 188 persons (age 42 ± 10; duration of disease: 8 years ± 3; median EDSS: 2.0), 42% identified pain as a symptom. The mean values for bodily pain subscale of SF-36 was 68, lower than age expected norms of 76. The mean value for rating of current pain at the time of evaluation was 3.3 ± 2.3; mean of lowest pain severity was 2.2 ± 2; worst pain severity was 6.8 ± 2; and pain average was 5.0 ± 2. The patient rating of average pain, differed from that calculated from their lowest and highest, suggesting that different but unknown information is used to estimate the average. All metrics were correlated including the calculated average of lowest and worst. Interestingly, it was indicated that of all ratings, the patients' ratings of worst pain was the most closely associated with the rating of average pain ($r = 0.76$). In addition, they all correlated similarly with an external pain rating scale (SF-36) and they all correlated with similar magnitude with all of the other dimensions of health-related quality of life (H-QOL).

Conclusion:
As patient estimate of average pain was highly correlated to the calculated average, we recommend not asking patients to rate "average" pain and for research purposes calculate the average. It yields a good summary measure reducing 4 values to 1.

Acknowledgements: CIHR- The Frederick Banting and Charles Best Doctoral Research Award

Poster 16

A Rasch Model Analysis of the Montreal Cognitive Assessment within a Cancer Population

Authors : G. Arcuri, L. Palladini, M. Sevigny, R. Laroui, L. Yang, B. Gagnon.

Background:
It has been well established that cognitive deficits are prevalent in many end-stage diseases such as HIV/AIDS and cancer. However, the specific aspects of cognition affected by cancer are still imprecise. Although the Montreal Cognitive Assessment has been validated in a geriatric population, studies have not yet shown its application to the cognitive deficits experienced by individuals affected by cancer.

Objective:
To determine the dimensionality of the Montreal Cognitive Assessment (MOCA) within a cancer population using statistical Rasch modeling.

Methods:
Data from 54 consecutive patients was collected retrospectively from patients enrolled in the Cancer Nutrition-Rehabilitation Program of the McGill University Health Centre. The patients' scores on each item of the MOCA were analyzed using Rasch modeling, and test of fit statistics were used to determine items which did not fit the model.

Results:
The data fit all the assumptions of the Rasch model adequately with fair reliability of PSI: 0.68, item-trait p=0.12), with the removal of 2 items for dependency. The measure covered 5 logits and the difficulty level of the items ranged from -2.3 to +2.4 logits.

Conclusion:
The results of this Rasch analysis begin to indicate that the MoCA may be used as a measure of cognition in patients with cancer.

Poster 17

Effects of diurnal variations in temperature on non-accidental mortality among the elderly population of Montreal, Quebec, 1984-2007

Authors: Maria Vutcovici, Mark S. Goldberg, Marie-France Valois

Background:
The association between ambient temperature and mortality has been studied extensively. Recently, there is some new data suggesting an independent role of diurnal temperature variations in increasing daily mortality.

Objective:
To determine whether variations in diurnal temperature were associated with daily non-accidental mortality among residents of Montreal, Quebec, who were 65 years of age and over during the 1984-2007 period.

Methods:
We used distributed lag non-linear Poisson models constrained over a 30 day lag period, adjusted for temporal trends, mean daily temperature, and mean daily concentrations of nitrogen dioxide and ozone.

Results:
We found, over the 30 day lag period, a cumulative increase of 5.12% (95%CI: 0.02-10.49%) in daily mortality for a change from 6°C to 11°C (25th to 75th percentiles) in diurnal temperature, and a 11.27% (95%CI: 2.08-21.29%) increase in mortality associated with an increase of the diurnal temperature range from 11 to 16°C (75th to 99th percentiles). The results were relatively robust to adjustment for daily mean temperature.

Conclusion:
We found that in Montreal diurnal variations in temperature are associated with a small increase in non-accidental mortality among the elderly population. More studies are needed in different geographical locations to confirm such an effect.

Poster 18

Analysis of the health and functional status of older cancer patients referred to a Geriatric Oncology Clinic

Authors: Doreen Wan-Chow-Wah, MD, *Victoria Mandilaras, MD, Johanne Monette, MD,MSc, Linda Alfonso, N,MEd, Nadia Sourial, MSc, Francine Gaba, MD, Jean Archambault, MD, Fay Strohschein, N, MSc, Carmela Pepe, MD

Background:
In Canada, 42% of cancer incidence and 59% of cancer mortality occur in persons aged ≥70 years (Canadian Cancer Statistics 2011). It has been reported that cancer is often under-treated in older patients due to comorbidities, impaired functional status and treatment toxicity.

Objectives:
The purpose of this study is to 1) describe the health and functional status of the patient population referred to our Geriatric Oncology clinic 2) explore the reasons for referral and recommendations made.

Methods:
A chart review was conducted of 270 patients who presented to our clinic between 2006 and 2011. Data pertaining to demographic information, health and functional status from the first visit was collected in a SPSS database. Health and functional status were assessed according to our Comprehensive Geriatric Oncology assessment consisting of Comorbidities, Medications, Functional status (ADLs, IADLs, ECOG), Social support, Cognition (MMSE Folstein, Montreal Cognitive Assessment test-MOCA), Mood (Geriatric Depression Scale), Mobility, Nutritional Status and Strength (Grip strength by dynamometer). Descriptive techniques such as frequencies, means and proportions were used for the statistical analysis.

Results:
Lung, breast and gynecological malignancies are the most common tumour sites. Average age of patients seen is 79 years old, and the majority of patients are referred for cognitive impairment (41.5%) and opinion on treatment plan (40%). As a result of our evaluations, we have uncovered and addressed previously undetected problems such as Mild Cognitive Impairment, Dementia, Polypharmacy, and Mood disorders.

Conclusion:
Our comprehensive Geriatric Oncology assessment allows us to identify many problems and issues for which specific targeted interventions can be made with the aim of improving patients' well-being and care.

Poster 19

Evaluation of Quality of Life of the Cognitively Impaired: Are We There Yet?

Authors: Kayla N. Cytryn, RN, PhD, Ovidiu Lungu, PhD, and Machelle Wilchesky, PhD

Background:
Assessment of the key outcome indicator of quality of life (QoL) of individuals with dementia presents significant challenges. People with dementia may be unable to comprehend the information being sought in questions and testing, lack insight into their own experiences, and may be unable to formulate responses that express their viewpoint and perceptions of their own QoL. Evaluation of the impact of care measures and performance improvement interventions is therefore challenging. A reliable and valid assessment of perceived QoL is necessary to identify need, determine care goals, and provide indicators of outcomes of care. Evaluation of tools originally designed for general populations revealed inconsistencies in generalisability from the general to the older population. The need for specific instruments is further indicated when considering those with dementia. Instruments developed to address evaluation of QoL in people with dementia have strengths and limitations. Alternatives include turning to those closest to the individuals: their families and caregivers, including long-term care facility staff members. Such ratings are moderately consistent with patients' ratings and are affected by characteristics of the caregiver such as perceived burden and depression level.

Objective:
To compare and contrast selected measures of QoL in long-term care settings in people with cognitive impairment levels ranging from none to severe dementia.

Methods:
Review of selected instruments will be presented, highlighting strengths and weaknesses of each, particularly targeting proxy evaluations and validity, reliability, and appropriateness in long-term care clinical settings.

Poster 20

Anticholinergic load as a modifiable risk factor in sitter use in acute care hospitals

Authors: Lessard A, Charbonneau-Allard AM, Fluet J, Rochefort C, Tamblyn R, Mallet L.

Objectives :
Prior research has provided evidence that psychotropic drugs are associated with a higher likelihood of sitter use in acute care hospitals. However, the mechanism explaining this association remains unknown. The aim of this study was to assess the association of three potentially modifiable pharmacological mechanisms with sitter use.

Method:
A retrospective case-control study was conducted. All medical patients ≥ 65 years who received a sitter (cases) were selected from a cohort of 43,212 patients admitted to an academic health center in Montreal in 2007-2008. For each case (n = 143), one control was randomly selected among patients who did not receive a sitter. For each case and control, we determined the: 1) number of psychotropic drugs not adjusted for renal function; 2) total anticholinergic load and, 3) number of clinically significant drug-drug interactions. Multivariate logistic regression was used to assess the association between sitter use and these three mechanisms.

Results (Max 125):
Compared with controls, patients who were assigned sitters had a higher anticholinergic load, a greater number of drugs not adjusted for renal function, and a larger number of drug-drug interactions, in the period prior to sitter use (i.e., the exposure period). In multivariate analysis, after having adjusted for the effect of patient demographic characteristics and comorbidities, we found that every additional drug with an anticholinergic load of 1 prescribed over the antecedent exposure period increased the likelihood of sitter use by 40% (OR = 1.4; 95%CI: 1.1 - 1.7). The number of drugs not adjusted for the patient's renal function and the number of drug-drug interactions identified over the antecedent exposure period were not significantly associated with sitter use.

Conclusion:
The use of patient sitters represents an important financial burden to acute care hospitals. Our findings indicate that one strategy to potentially decrease the costs associated with sitter use is for physicians to prescribe, when possible, drugs that have a low anticholinergic load.

Poster 21

A network meta-analysis of antibiotics for treatment of hospitalized patients with suspected or proven methicillin-resistant Staphylococcus aureus infection

Authors: Michèle Bally, Alison Sinclair, Nandini Dendukuri, Jay Brophy

Background:
Infections due to methicillin-resistant Staphylococcus aureus (MRSA) pose a serious health risk. Novel methods for assessing comparative effectiveness and safety may provide valuable insights into the optimal therapy.

Methods:
We performed a systematic review and Bayesian network meta-analysis to compare parenteral antibiotics for treating hospitalized adults with complicated skin and soft-tissue infections (cSSTI) and hospital-acquired or ventilator-associated pneumonia (HAP/VAP). Models adjusted for clinical heterogeneity between studies. Treatments were ranked on efficacy, defined as clinical success in the modified intention-to-treat population (MITT) and in the MITT population with MRSA at baseline.

Safety evaluation considered all-cause mortality (in pneumonia only), serious adverse events, and withdrawals due to adverse events.

Results:
We identified 24 RCTs, each comparing one of five antibiotics to vancomycin. Direct pairwise meta-analysis of the RCTs found no statistically significant differences between vancomycin and its comparators. However, in the network meta-analysis for cSSTI (17 RCTs), linezolid and ceftaroline were the most effective antibiotics, as indicated by the ranking for clinical success (probability of being best). For pneumonia (10 RCTs), linezolid fared better than vancomycin. Vancomycin ranked third in cSSTI and second in pneumonia on both efficacy and safety. Safety generally mirrored efficacy findings, except for telavancin. We suspect performance and detection bias in cSSTI trials involving linezolid, but were unable to adjust for this. Interpretation: Linezolid and ceftaroline appear to be the preferred agents for treating cSSTI and HAP/VAP. Translation of these findings into practice should consider the small size of the evidence networks and the associated uncertainty.

Poster 22

Can a urine antigen test improve diagnosis of community acquired pneumonia and increase use of targeted antibiotics? A systematic review of the evidence?

Authors: Alison Sinclair, Xuanqian Xie, Nandini Dendukuri

Background:
The results of standard culture methods for diagnosis of streptococcal pneumonia (SP) require 24 hours, and are relatively insensitive. The BinaxNOW urine test requires only 2 hours, thus allowing earlier diagnosis and targeted treatment for community acquired pneumonias (CAP), in turn potentially reducing risk of nosocomial infections and antibiotic resistance.

Methods:
We carried out a systematic literature review of diagnostic, etiological, and clinical studies of BinaxNOW in patients hospitalized with CAP. Diagnostic studies were combined in a Bayesian meta-analysis with adjustment for an imperfect reference standard. Subgroup and sensitivity analyses explored the effects of study design, purpose and setting. We estimated cost-effectiveness of routine use BinaxNOW in addition to culture.

Results: Twenty-seven studies had diagnostic data suitable for a meta-analysis, with variable reference standards. We estimated a pooled sensitivity of BinaxNOW of 74.0% (95% credible interval 66.6%, 82.3%) and specificity of 97.2% (95%CrI 92.7%, 99.8%). Assuming prevalence of CAP is 30%, addition of BinaxNOW-SP identifies 30% (95% CrI 17%, 41%) of SP patients missed by routine culture, with an increase in false positives of 3% (95% CrI 0%, 7%).. The incremental cost per hospitalized patient (assuming 30% prevalence of SP) was $36.20 (95%Cr $35.70, $36.60), when the least expensive empirical and targeted therapies were compared, and less with more expensive empirical therapies.

Conclusion:
Use of BinaxNOW increases the percentage of SP patients identified, but is accompanied by additional costs, the magnitude of which depends upon the relative cost of the antibiotic regimens. The impact of BinaxNOW results on outcomes is undetermined.

Poster 23

Obesity And C-Reactive Protein In Various Populations: A Systematic Review and a Meta-Analysis

Authors: Jin Choi MSc Candidate, Lawrence Joseph PhD and Louise Pilote MD MPH PhD.

Objectives:
To estimate the associations between obesity and C-reactive protein (CRP) according to sex, ethnicity, and age via systematic review and meta-analysis.

Background:
CRP is a powerful marker of inflammation and is associated with cardiovascular events. Obesity has been frequently linked to elevated levels of CRP but whether the magnitude of the association differs in various populations remains unknown.

Methods:
We searched Medline and EMBASE databases through October 5th 2011 for cross-sectional studies investigating the association between anthropometric measures of obesity and CRP. Using a standardized protocol two reviewers extracted data, which were aggregated using random-effects models. Meta-regressions and subgroup analyses were performed to examine the effects of sex and ethnicity in adult and child populations.

Results:
We identified 51 studies that met the inclusion criteria for the review. BMI was strongly associated with ln(CRP) in all adult (Pearson coefficient [r]: 0.36; 95% CI: 0.30 to 0.42) and child (r: 0.37; 95% CI: 0.31 to 0.43) populations. In meta-regression analyses for adults, r for BMI and ln(CRP) was greater in women than men by 0.24 [0.09 to 0.37] (difference in r, [95% CI]), and greater in Western populations than Asian populations by 0.15 [0 to 0.28], on average. Subgroup analyses in children showed the BMI- ln(CRP) association to be comparable between boys and girls in Western populations (difference in r: -0.01; 95% CI: -0.08 to 0.06). Qualitative review of data confirmed these findings. We found similar results when waist circumference (WC) or waist-hip ratio (WHR) was used in the analyses instead of BMI.

Conclusions: Obesity is strongly associated with elevated levels of CRP in men, women, North Americans/Europeans, Asians, adults, and children. Such associations are strongest in women and North Americans/Europeans. Further research is needed to identify the pathophysiological mechanisms by which these sex and ethnic differences emerge in adulthood.

Poster 24

Identifying and Characterizing Trajectories of QOL in Persons with Advanced Cancer: Important Contributors to decreasing QOL in People with Cancer

Authors: Ana Maria Rodriguez, PhD Candidate, Montreal, QC, Canada; Nancy Mayo McGill University Montreal QC Canada.

Purpose:
In cancer, we aim at maintaining the Quality of Life (QOL) of patients. Yet minimal work examines predictors of QOL constructs over time. The aim of this study was to explore the temporal sequence leading to optimal QOL over time of key components of the Wilson Cleary Model.

Methods:
212 persons with a variety of advanced cancer from the McGill University Health Center (MUHC) were evaluated using nine patient-reported outcomes and seven direct measures over a course of 18 months. As an attempt to minimize measurement error, Rasch analysis was used to model symptoms (Appetite, Pain, Fatigue, Emotional status, Memory), function (physical, emotional, social), general health perceptions (GHP), and overall quality of life latent constructs (QOL). Additionally, biological variables such as recalled weight loss, C-Reactive protein (CRP) serum concentration, Skeletal Muscle Mass, and Body Mass index were measured. The latent

QOL construct was then modeled over time using “group-based modeling”. Probability of group membership was finally predicted using the different biological, symptoms, function, and GHP constructs of the Wilson-Cleary model at study entry, which coincided with the time of cancer diagnosis.

Results: The Rasch QOL model over time resulted in 5 distinct trajectories: a low and slightly linear increasing trajectory representing 26% of the sample, two flat medium and high performing trajectories representing 26 and 17% of the sample respectively, a quadratic increasing trajectory representing 25% of the sample, and a linear abruptly decreasing trajectory representing 5% of the sample. The variables or latent constructs from the time of diagnosis that statistically significantly predicted membership in a QOL trajectory were age, sex, cancer type, recalled weight loss, CRP, social support, emotional status, and fatigue.

Conclusions:
Using a combination of Rasch, group-based trajectory modeling, and linear regression, we were able to discriminate between relevant QOL subgroups of patients. Most importantly, we were able to predict QOL trajectory from the time of diagnosis with advanced cancer. This enabled us to make preliminary conclusions about the most important contributors to QOL over time, and emphasizes the importance in assessing social support, fatigue level, and emotional status of patients from the time of diagnosis to maintain their QOL throughout their living experience with cancer.