Journal Scan

- **Association among activities of daily living, instrumental activities of daily living and health-related quality of life in elderly Yi ethnic minority**

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Background: The health-related quality of life (HRQoL) of the elderly population of Yi ethnic minority, which is the seventh largest nationality in China, has been rarely reported. This study was designed to explore the HRQoL of the elderly Yi ethnicity and association between their HRQOL and functional abilities.

Methods: A total of 291 Yi ethnic residents were randomly recruited from 12 rural counties in Yunnan province and divided into different age groups. Local residents in Yunnan province and the elderly from Hangzhou were enrolled as controls. The MOS 36-Item Short Form Health Survey (SF-36), activities of daily living (ADL), instrumental activities of daily living (IADL) scales were utilized to evaluate the HRQoL and functional ability. One-way ANOVA was used to statistically compare the ADL and IADL among different age groups. The influential variables on HRQOL were analyzed by multiple linear regression analysis. Pearson correlation analysis was used to analyze the association among HRQoL, ADL and IADL.

Results: The HRQoL of the elderly Yi minority was significantly lower than those of local residents in Yunnan province and the elderly counterparts in Hangzhou. The IADL ability of the elderly Yi minority was low, whereas they could perform most items of ADL. ADL, IADL, and education level were positively associated with HRQoL, whereas age, chronic diseases, and the frequency of medication use were negatively correlated with HRQoL.

Conclusion: The HRQoL and functional capacity of the elderly Yi ethnic minority were lower compared with their counterparts in Yunnan province and Hangzhou. The low level of IADL indicated that the elderly Yi participants had a high risk of cognitive impairment. Much attention should be diverted to influential factors of the HRQoL.

Keywords: Health-related quality of life Elderly Yi ethnic minority ADL IADL

- **Is independence of older adults safe considering the risk of falls?**

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Background: Falls affect approx. 30% of elderly population per year. They cause major injuries and reduce independence of the older adults' functioning.

The main objective of the study was to evaluate the degree of independence and find the fall risk factors in the study group.

Methods: The study included 506 – older adults. The study group included patients from GP clinics and members of two senior centers. The study duration was 12 months. Our study tools included EASY- Care Standard 2010 questionnaire, Abbreviated Mental Test Score (AMTS), Index Barthel, Instrumental Activities of Daily Living Scale (IADL), Geriatric Depression Scale (GDS), Timed Up and Go (TUG).

Results: The study included 357 (70.6%) female and 149 (29.4%) male subjects. The mean age of the study group patients was 75.7 years ± 8.0. Most of the older adult subjects were independent in both basic (Index Barthel) and instrumental (IADL) activities. Gait fluency evaluated in TUG scale found slow and unsteady gait in 33.7% of the subjects. 27.5% of the subjects used mobility aids when walking. In the Risk of falls scale, 131 subjects (25.89%) were at risk of falls. According to logistic regression the main risk of fall determinants (p <0.05) in the study group were: age, previous falls, feet problems, lack of regular care, impaired vision, urinary incontinence, pain, sleeping disorders, and lowered mood.

Conclusions: Risk of falls increases in people less independent in terms of basic and complex life activities and in people with depression. Most of the risk factors can be modified. It is necessary to develop

a standard procedure aimed at preventing falls in the elderly.

Keywords: Falls Elderly people Life activities

- **Association between routine laboratory tests and long-term mortality among acutely admitted older medical patients: a cohort study**

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Background: Older people have the highest incidence of acute medical admissions. Old age and acute hospital admissions are associated with a high risk of adverse health outcomes after discharge, such as reduced physical performance, readmissions and mortality. Hospitalisations in this population are often by acute admission and through the emergency department. This, along with the rapidly increasing proportion of older people, warrants the need for clinically feasible tools that can systematically assess vulnerability in older medical patients upon acute hospital admission. These are essential for prioritising treatment during hospitalisation and after discharge.

Here we explore whether an abbreviated form of the FI-Lab frailty index, calculated as the number of admission laboratory test results outside of the reference interval (FI-OutRef) was associated with long term mortality among acutely admitted older medical patients. Secondly, we investigate other markers of aging (age, total number of chronic diagnoses, new chronic diagnoses, and new acute admissions) and their associations with long-term mortality.

Methods: A cohort study of acutely admitted medical patients aged 65 or older. Survival time within a 3 years post-discharge follow up period was used as the outcome. The associations between the markers and survival time were investigated by Cox regression analyses. For analyses, all markers were grouped by quartiles.

Results: A total of 4,005 patients were included. Among the 3,172 patients without a cancer diagnosis, mortality within 3 years was 39.9%. Univariate and multiple regression analyses for each marker showed that all were significantly associated with post-discharge survival. The changes between the estimates for the FI-OutRef quartiles in the univariate- and the multiple analyses were negligible. Among all the markers investigated, FI-OutRef had the highest hazard ratio of the fourth quartile versus the first quartile: 3.45 (95% CI: 2.83-s4.22, $P < 0.001$).

Conclusion: Among acutely admitted older medical patients, FI-OutRef was strongly associated with long-term mortality. This association was independent of age, sex, and number of chronic diagnoses, new chronic diagnoses, and new acute admissions. Hence FI-OutRef could be a biomarker of advancement of aging within the acute care setting.

- **Integrated care at home reduces unnecessary hospitalizations of community-dwelling frail older adults: a prospective controlled trial**

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Background: Care of frail and dependent older adults with multiple chronic conditions is a major challenge for health care systems. The study objective was to test the efficacy of providing integrated care at home to reduce unnecessary hospitalizations, emergency room visits, institutionalization, and mortality in community dwelling frail and dependent older adults.

Methods: A prospective controlled trial was conducted, in real-life clinical practice settings, in a suburban region in Geneva, Switzerland, served by two home visiting nursing service centers. Three hundred and one community-dwelling frail and dependent people over 60 years old were allocated to previously randomized nursing teams into Control (N = 179) and Intervention (N = 122) groups: Controls received usual care by their primary care physician and home visiting nursing services, the Intervention group received an additional home evaluation by a community geriatrics unit with access to a call service and coordinated follow-up. Recruitment began in July 2009, goals were obtained in July 2012, and outcomes assessed until December 2012. Length of follow-up ranged from 5 to 41 months (mean 16.3). Primary outcome measure was the number of hospitalizations. Secondary outcomes were reasons for hospitalizations, the number and reason of emergency room visits, institutionalization, death, and place of death.

Results: The number of hospitalizations did not differ between groups however, the intervention led to lower cumulative incidence for the first hospitalization after the first year of follow-up (69.8%, CI 59.9 to 79.6 versus 87 · 6%, CI 78 · 2 to 97 · 0; p = .01). Secondary outcomes showed that the intervention compared to the control group had less frequent unnecessary hospitalizations (4.1% versus 11.7%, p = .03), lower cumulative incidence for the first

emergency room visit, 8.3%, CI 2.6 to 13.9 versus 23.2%, CI 13.1 to 33.3; p = .01), and death occurred more frequently at home (44.4 versus 14.7%; p = .04). No significant differences were found for institutionalization and mortality.

Conclusions: Integrated care that included a home visiting multidisciplinary geriatric team significantly reduced unnecessary hospitalizations, emergency room visits and allowed more patients to die at home. It is an effective tool to improve coordination and access to care for frail and dependent older adults.

Trial registration: Clinical Trials.gov Identifier: NCT02084108. Retrospectively registered on March 10th 2014.

Keywords: Aged Community based interventions Home care Chronic disease Palliative care

- **Prescription of potentially inappropriate medication in Korean older adults based on 2012 Beers Criteria: a cross-sectional population based study**

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Background: A high number of elderly people with multiple comorbidities are exposed to the risk of polypharmacy and prescription of potentially inappropriate medication (PIM). The purpose of this study was to determine the prevalence and patterns of PIM prescription in Korean older adults according to the 2012 Beers Criteria.

Methods: A retrospective study was conducted using data from the Korean Health Insurance Review and Assessment (KHIRA) database of outpatient prescription claims collected from January 1, 2009 to December 31, 2011. A total of 523,811 elderly subjects aged 65 years and older were included in the study, and several covariates related to the prescription of PIMs were obtained from the KHIRA database. These covariates were analyzed using Student's t test and the chi-square test; furthermore, multivariate logistic regression analysis was used to evaluate the risk factors associated with the prescription of PIMs.

Results: A total of 80.96 % subjects were prescribed at least one PIM independent of their diagnosis or condition according to the 2012 Beers Criteria. The most commonly prescribed medication class was first-generation antihistamines with anticholinergic properties (52.33%). Pain medications (43.04%) and benzodiazepines (42.53%) were next in line. When considering subjects' diagnoses or conditions, subjects diagnosed with central nervous system conditions were most often prescribed PIMs. Female sex, severity of comorbidities, and polypharmacy were significant risk factors for PIM prescriptions.

Conclusions: This study confirmed that PIM prescription is common among elderly Koreans. A clinical decision support system should be developed to decrease the prevalence of PIM prescriptions.

Keywords: Potentially inappropriate medication (PIM) Beers Criteria Polypharmacy Adverse drug effects (ADEs)

- **Disability in long-term care residents explained by prevalent geriatric syndromes, not long-term care home characteristics: a cross-sectional study**

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Background: Self-care disability is dependence on others to conduct activities of daily living, such as bathing, eating and dressing. Among long-term care residents, self-care disability lowers quality of life and increases health care costs. Understanding the correlates of self-care disability in this population is critical to guide clinical care and ongoing research in Geriatrics. This study examines which resident geriatric syndromes and chronic conditions are associated with residents' self-care disability and whether these relationships vary across strata of age, sex and cognitive status. It also describes the proportion of variance in residents' self-care disability that is explained by residents' geriatric syndromes versus long-term care home characteristics.

Methods: We conducted a cross-sectional study using a health administrative cohort of 77,165 long-term care home residents residing in 614 Ontario long-term care homes. Eligible residents had their self-care disability assessed using the RAI-MDS 2.0 activities of daily living long-form score (range: 0–28) within 90 days of April 1st, 2011. Hierarchical multivariable regression models with random effects for long-term care homes were used to estimate the association between self-care disability and resident geriatric syndromes, chronic conditions and long-term care home characteristics. Differences in findings across strata of sex, age and cognitive status (cognitively intact versus cognitively impaired) were examined.

Results: Geriatric syndromes were much more strongly associated with self-care disability than chronic conditions in multivariable models. The direction and size of some of these effects were different for cognitively impaired versus cognitively

intact residents. Residents' geriatric syndromes explained 50% of the variation in their self-care disability scores, while characteristics of long-term care homes explained an additional 2% of variation.

Conclusion: Differences in long-term care residents' self-care disability are largely explained by prevalent geriatric syndromes. After adjusting for resident characteristics, there is little variation in self-care disability associated with long-term care home characteristics. This suggests that residents' geriatric syndromes—not the homes in which they live—may be the appropriate target of interventions to reduce self-care disability, and that such interventions may need to differ for cognitively impaired versus unimpaired residents.

Keywords: Activities of daily living Chronic disease Disability Disablement Process Geriatric syndrome Nursing homes.

- **The prevalence and incidence of frailty in Pre-diabetic and diabetic community-dwelling older population: results from Beijing longitudinal study of aging II (BLSA-II)**

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Background: Various factors including cardio-metabolic disorders are found to be correlated with frailty. With the increase in age, older adults are likely to have elevated blood glucose level. In this study we intend to investigate the prevalence and incidence of frailty in the pre-diabetic and diabetic community dwelling elderly population and the associated risk factors.

Methods: At baseline total of 10,039 subjects with a mean age of 70.51 (±7.82) were included. A total of 6,293 older adults were followed up at 12 months. A Frailty index (FI) with 32 items was developed using Rockwood's cumulative deficits method. Frailty index ≥0.25 was used as cut-off criteria for the diagnosis of frailty. Diagnosis of pre-diabetes and diabetes was set according to the World Health Organization (WHO) criteria for fasting plasma glucose (FPG) level. Chi-square tests were performed to compare percentages by 3 major groups (non-diabetes, pre-diabetes, diabetes), ANOVA and student's t-tests was used to compare means of group for continuous variables. Multiple logistic regression models were performed to estimate the risk factors for frailty in non-diabetic, pre-diabetic and diabetic elderly populations using baseline and longitudinal data.

Results: Diabetic population had a much higher prevalence (19.32%) and incidence (12.32%) of frailty, compared to that of non-diabetic older adults (prevalence of 11.92% and incidence of 7.04%). And pre-diabetics had somewhat similar prevalence of 11.43% and slightly higher incidence of 8.73% for frailty than non-diabetic older adults. Diabetics were at 1.36 (95% CI = 1.18,1.56) and 1.56 (95% CI = 1.32,1.85) fold increase in risk of frailty compared to non-diabetic population for prevalence and incidence, respectively. Being female, urban living, high waist circumference, less house work and need regular anti-diabetic medications were independent risk factors only in pre-diabetic and diabetic older adults.

Conclusion: This study confirms that diabetes is an independent serious chronic condition to increase the risk of frailty in community dwelling older adults in northern China. To effectively delay or avoid frailty, older adults should be advised for taking proper control of blood glucose level and avoiding the associated risk factors and implementing the protective factors in primary-care setting.

Keywords: Frailty Elderly diabetes Pre-diabetes Elevated- blood glucose

- **Factors associated with older people's long-term care needs: a case study adopting the expanded version of the Anderson Model in China**

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Background: Alongside changes in society and the economy, the family's function of taking care of older people is weakening and the formal care mode is becoming more accepted. Older Chinese people are facing diverse choices of long-term care (LTC) modes. Acknowledging this situation, to optimize older people's arrangements for LTC services and improve quality of later life, this study sets out to explore and make theoretical sense of older people's LTC needs and to identify the factors influencing their LTC needs.

Methods: Questionnaire data were collected from 1090 participants in four Chinese cities in 2014. A conceptual framework was established based on the Anderson Model (i.e., predisposing factors, enabling factors, and need factors), and further strengthened by adding several psychosocial factors (i.e. intergenerational relationships, unmet care service needs, and self-image). Multinomial logistic regression was adopted to explore the influencing factors of LTC needs. Participants choosing home-and-community-based care were regarded as the reference group.

Results: After controlling for predisposing, enabling, and need factors, those with better self-image (*OR* = 1.027, *p* = 0.021) and fewer unmet care service needs (*OR* = 0.936, *p* = 0.009) were identified as being more likely to choose family care; those with less close intergenerational relationships (*OR* = 0.676, *p* = 0.019), fewer unmet care service needs (*OR* = 0.912, *p* = 0.027), and better self-image (*OR* = 1.044, *p* = 0.026) were more likely to choose institutional care. Gender- and age-related differences in the determinants of LTC needs were observed.

Conclusions: The findings of this study suggest that professionals and service providers should pay more attention to the important role of psychosocial factors in affecting older people's LTC needs and be more sensitive to gender- and age-related differences. Effective efforts to improve intergenerational relationships, to further develop care services for older people, and to foster a more positive image of aging should be emphasized.

Keywords: Long-term care needs Older people Anderson Model Influencing factors Psychosocial factors

- **Managing multiple chronic conditions in the community: a Canadian qualitative study of the experiences of older adults, family caregivers and healthcare providers**

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Background: The prevalence of multiple chronic conditions (MCC) among older persons is increasing worldwide and is associated with poor health status and high rates of healthcare utilization and costs. Current health and social services are not addressing the complex needs of this group or their family caregivers. A better understanding of the experience of MCC from multiple perspectives is needed to improve the approach to care for this vulnerable group. However, the experience of MCC has not been explored with a broad sample of community-living older adults, family caregivers and healthcare providers. The purpose of this study was to explore the experience of managing MCC in the community from the perspectives of older adults with MCC, family caregivers and healthcare providers working in a variety of settings.

Methods: Using Thorne's interpretive description approach, semi-structured interviews (*n* = 130) were conducted in two Canadian provinces with 41 community-living older adults (aged 65 years and older) with three or more chronic conditions, 47 family caregivers (aged 18 years and older), and 42 healthcare providers working in various community settings. Healthcare providers represented various disciplines and settings. Interview transcripts were analyzed using Thorne's interpretive description approach.

Results: Participants described the experience of managing MCC as: (a) overwhelming, draining and complicated, (b) organizing pills and appointments, (c) being split into pieces, (d) doing what the doctor says, (e) relying on family and friends, and (f) having difficulty getting outside help. These themes resonated with the emotional impact of MCC for all three groups of participants and the heavy reliance on family caregivers to support care in the home.

Conclusions: The experience of managing MCC in the community was one of high complexity, where there was a large gap between the needs of older adults and caregivers and the ability of health and social care systems to meet those needs. Healthcare for MCC was experienced as piecemeal and fragmented with little focus on the person and family as a whole. These findings provide a foundation for the design of care processes to more optimally address the needs-service gap that is integral to the experience of managing MCC.

Keywords: Multimorbidity Older persons Caregivers Healthcare providers Primary care Home care Qualitative research.