Trends in Mortality among Long-Term Care Insurance (LTCI)-Certified Older Adults

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Objective : In examining trends in health expectancy, we observed that the period with activity limitations shortened in 2022, during the COVID-19 pandemic, compared with 2019. Similar patterns have been reported in other countries, such as France. A possible explanation is that mortality increased among older adults with activity limitations due to the impact of COVID-19. This study aimed to clarify mortality trends among LTCI-certified older adults, including those certified as needing support.

Methods : The number of LTCI-certified older adults was obtained from the Long-Term Care Insurance Business Report. Deaths among these individuals were derived from the Long-Term Care Database Open Data, deaths in the general population from Vital Statistics, and population figures from the Resident Registry–based Japanese population. Analyses were conducted in 5-year age groups for individuals aged 65 years and older. Mortality rates were calculated for both the general population and LTCI-certified older adults from 2017 to 2022, and age-standardized using the direct method with the 2015 Japanese standard population. Mortality indices were then calculated by averaging male and female values with equal weights, using 2019 as the reference year.

Results : The age-standardized mortality index in the general population was 0.971 in 2020, 0.990 in 2021, and 1.050 in 2022, showing a temporary decline in 2020 followed by an upward trend. Among LTCI-certified older adults, the index was 1.048 in 2020, 1.026 in 2021, and 1.113 in 2022, indicating a steady upward trend. Even before the COVID-19 pandemic, mortality had already been increasing in the LTCI-certified group.

Discussion : During the COVID-19 pandemic, mortality rose more sharply among LTCI-certified older adults than in the general population. However, the upward trend appears to have preceded the pandemic. This may be related to the increasing number of deaths occurring at home and in nursing facilities.

Initial real-world experience with lecanemab prescribing pattern in Japan: The LIFE Study

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Background : Lecanemab is a monoclonal antibody targeting amyloid-β, shown to reduce amyloid accumulation in the brain and slow cognitive decline in patients with mild cognitive impairment (MCI) or mild dementia due to Alzheimer's disease. Since December 2023, lecanemab has become available for prescription in Japan.

Objective : To characterise the early real-world use of lecanemab in Japan, focusing on patient demographics, cognitive function, comorbidities, and discontinuation patterns in a setting of universal healthcare.

Methods : This cohort study used data from the Longevity Improvement and Fair Evidence (LIFE) Study, a population-based health and long-term care claims database in Japan. Patients prescribed lecanemab between December 2023 and September 2024 were identified. Discontinuation was defined as a gap of ≥28 days between prescriptions. Covariates included age, sex, long-term care (LTC) certification, Mini-Mental State Examination (MMSE) score, Clinical Dementia Rating (CDR), and comorbidities based on the International Classification of Diseases, 10th Revision. Descriptive characteristics and discontinuation rates (per 100 person-months) were revealed, and cumulative incidence was estimated.

Results : A total of 127 patients initiated lecanemab, with a median age of 76 years; 73.2% were women. Most had mild cognitive impairment: 52.8% had MMSE scores of 24–27 and 81.4% had CDR 0.5. The overall discontinuation rate was 3.60 per 100 person-months, with most events occurring within 1.5 months.

Conclusion : In this initial report from Asia, lecanemab was predominantly prescribed to older women with relatively mild cognitive impairment, and discontinuation typically occurred early. These findings suggest cautious early adoption in clinical practice.

Identifying Hypertension-Associated Features with Machine Learning: Insights from NHANES 2013–2014

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Background : Hypertension is a leading risk factor for cardiovascular morbidity worldwide. With the growing availability of health data, machine learning (ML) offers a promising approach to uncover predictive patterns. This study aimed to identify features associated with hypertension using ML models trained on the National Health and Nutrition Examination Survey (NHANES) 2013–2014, with a specific focus on nutritional factors.

Methods : We extracted demographic, clinical, laboratory, and dietary intake variables from NHANES 2013–2014. Six ML algorithms—Logistic Regression (LR), Random Forest (RF), Support Vector Machine (SVM), Naïve Bayes (NB), XGBoost, and LightGBM—were trained to predict hypertension status. Model performance was evaluated using accuracy, sensitivity, specificity, precision, F1-score, and AUC with 95% confidence intervals. Calibration curves assessed agreement between predicted and observed risks. SHAP (Shapley Additive Explanations) values were used to interpret individual feature contributions.

Results : All models demonstrated good discriminative performance. Model accuracy ranged from 0.80 to 0.82. Calibration analysis indicated well-calibrated predictions for tree-based models and LR, while SHAP analysis revealed age, BMI, and eGFR as the most influential predictors. Notably, several dietary components—including saturated fat, protein, fiber—were consistently associated with the prediction of hypertension, highlighting their potential importance in risk stratification.

Conclusion : ML models trained on NHANES data can accurately identify individuals at risk for hypertension. In addition to established clinical indicators, multiple dietary intake variables emerged as relevant predictors and may warrant further investigation. These findings support the use of interpretable ML models in public health to inform targeted prevention strategies.

Ipsilateral breast events after treatment for ductal carcinoma in situ in New Zealand women

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Background : Despite its favourable survival prognosis, the main concern for ductal carcinoma in situ (DCIS) is local recurrence. We investigated incidence and risk factors associated with ipsilateral breast event (IBE), defined as first occurrence of DCIS or invasive cancer in the same breast, after treatment of DCIS.

Methods : This study used the data from New Zealand Breast Cancer Foundation National Register for the period of 2000-2022. Cumulative incidence of IBE was estimated using the cumulative incidence function, accounting for death as competing risks. Associated factors were identified using multivariable Fine-Gray subdistribution hazard models to estimate hazard ratios (HRs).

Results : Of the 5741 patients, approximately 38.2% of women received breast conserving surgery (BCS) with radiotherapy (RT), 34.9% received mastectomy, and 26.9% had only BCS. The median follow-up was 4.8 years. The 5- and 10-year cumulative incidences of IBE were 5.3% (95%CI: 4.6%, 6.1%), and 10.3% (9.2%, 11.5%), respectively. The risk of IBE was higher in women who were under 45 years old at diagnosis (HR: 1.94; 95%CI: 1.36, 2.77), had DCIS size ≥20mm (HR: 1.42; 1.10, 1.83), had surgery in a private facility (HR: 1.31; 1.05, 1.63), and had surgical margin size <2mm (HR: 1.53; 1.16, 2.00). The risk was lower in women who received BCS with RT (HR: 0.54; 0.42, 0.69) or mastectomy (HR: 0.14; 0.10, 0.22). Among patients treated with BCS, with or without RT, similar association was observed, for which the risk was also higher for Māori women (HR: 1.51; 1.04, 2.18) in comparison to European counterparts.

Conclusions : IBE was common in women with DCIS, with a higher risk associated with younger age at diagnosis, larger DCIS size, breast conservation, especially without RT, surgical margin <2mm and having surgery in a private facility.

Key messages : DCIS size, surgical approach, and age at DCIS diagnosis influenced the risk of DCIS post-treatment IBE.

Association of magnesium and urea nitrogen in spot urine during pregnancy with risk of overweight

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Background : We examined the association of magnesium (Mg) and urea nitrogen (UN) in spot urine during pregnancy with the risk of overweight among Japanese women in the prospective study.

Methods : We collected spot urine during pregnancy among Japanese women who participated in the Osaka-regional Adjunct Study of the Japan Environment and Children's Study. Urinary Mg and UN in the first trimester and the second-to-third trimester were measured and adjusted by creatinine (cre). We analyzed data from 1,758 participants with pre-pregnancy body mass index (BMI) <25.0 kg/m^2 and who completed body measurements at the 8-year follow-up. Mg/cre and UN/cre were divided into quartile groups. The multivariable odds ratios (ORs) and 95% confidence intervals (CIs) for overweight (BMI ≥25.0 kg/m^2) were estimated by logistic regression analysis.

Results : Mg/cre and UN/cre during pregnancy were inversely associated with the risk of overweight. After adjustment for age, education and smoking, the multivariable ORs (95% CIs) for the highest versus lowest quartile of Mg/cre were 0.52 (0.34-0.80) for the first trimester and 0.57 (0.38-0.85) for the second-to-third trimester (p for trend = 0.003 and 0.004). The corresponding ORs (95% CIs) of UN/cre were 0.69 (0.46-1.04) and 0.51 (0.34-0.78), respectively. (p for trend = 0.03 and 0.001)

Conclusions : Urinary Mg and UN during pregnancy were inversely associated with the risk of overweight among Japanese women.