Systolic BP and cardiovascular events in AF patients who are on undergoing anticoagulant therapy

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Objectives : This study aimed to use real-world data obtained from a claim database based on the general population to indicate the optimal blood pressure (BP) level for preventing cardiovascular disease and bleeding in patients with atrial fibrillation (AF) undergoing anticoagulant therapy.

Methods : We conducted a retrospective cohort study using claims data and health checkup data collected from multiple health insurance companies in Japan. A total of 4,039 AF patients with health examination data who were receiving anticoagulant therapy were analyzed. BP was classified as the Japanese society of hypertension guidelines for the management of hypertension (JSH 2025). Primary outcome was cardiovascular disease, Safety outcomes were intracranial and extracranial bleeding.

Result : During a mean follow-up period of 2.80 years, 133 cardiovascular disease events, 33 intracranial and 152 extracranial bleeding were observed. Linear spline analysis demonstrated constant increase in the risk of cardiovascular disease in the range of systolic BP >130 mm Hg. Linear spline analysis also demonstrated constant increase in the risk of intracranial bleeding from very low systolic BP levels. There were no clear association between systolic BP levels and extracranial bleeding.

Conclusion : Among AF patients undergoing anticoagulant therapy, optimal systolic BP levels appear to be <120-130 mmHg for prevention of cardiovascular disease and of intracranial bleeding.

Risk factors for obesity and overweight at 3.5 years old: the TMM BirThree Cohort Study

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We aimed to investigate the risk factors for obesity and overweight in children at 3.5 years old. Of the 23,730 pairs of mothers and infants who participated in the Tohoku Medical Megabank Project Birth and Three-Generation Cohort Study, 1,475 pairs with valid responses were analyzed. Risk factors were selected from birth weight z-score, maternal age at delivery, breastfeeding at 1-2 months old, change in weight z-score from birth to 6 months, and maternal pre-pregnancy body mass index (BMI). Outcomes were obesity (BMI z-score in the top 5%) and overweight children (BMI z-score in the top 15%) at 3.5 years old, based on both the Centers for Disease Control and Prevention (CDC) standard and the Japanese standard. Multiple logistic regression was used to examine associations between risk factors and outcomes. In analyses based on the CDC standard, birth weight z-score and change in weight z-score from birth to 6 months were significantly associated with both obesity and overweight. Maternal age at delivery was significantly associated with obesity, maternal pre-pregnancy BMI with overweight. Breastfeeding at 1-2 months old was not associated with either obesity or overweight. The corresponding odds ratios (95% confidence intervals) were as follows: birth weight z-score: 3.71 (2.42–5.69) for obesity and 2.72 (2.10–3.54) for overweight; maternal age at delivery: 1.07 (1.01–1.14) for obesity and 1.02 (0.99–1.06) for overweight; change in weight z-score from birth to 6 months: 2.31 (1.69–3.17) for obesity and 2.11 (1.73–2.58) for overweight; maternal pre-pregnancy BMI: 1.03 (0.95–1.11) for obesity and 1.11 (1.06–1.16) for overweight. Results based on the Japanese standard were similar to those using the CDC standard. In conclusion, both results from CDC standard and Japanese standard suggest that birth weight z-score and change in weight z-score from birth to 6 months are common risk factors for obesity and overweight in children at 3.5 years old.

Estimating the directly averted number of COVID-19 infections using seroepidemiological datasets.

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Background・Purpose : Direct effect of vaccination in 2021 was estimated elsewhere, but the estimation relied on confirmed cases stratified by vaccination history, and undiagnosed infections were of course excluded from the evaluation. During the COVID-19 pandemic, cross-sectional seroepidemiological surveys were serially carried out, potentially shedding light on estimation of unascertained infections. The purpose of the present study was to address the ascertainment bias and yet estimate the direct effectiveness of vaccination based on estimated actual number of infected individuals.

Methods : We systematically investigated publicly available seroepidemiological datasets between June 2020 and June 2022. A statistical model was constructed integrating vaccination coverage, vaccination effectiveness, seroconversion rate upon infection, antibody waning rate, and daily infection risk, to estimate the time-dependent risk of infection by vaccination history.

Results : The actual cumulative number of infections was of course greater than the cumulative number of confirmed cases, and accordingly, the directly averted number of infections were more than 1.5 times that relied on empirically observed case data only.

Discussion : Even in cross-sectional surveys, when seroepidemiological surveys are repeatedly conducted, it is possible to estimate the time-series infection risk and evaluate the direct reduction in infection risk associated with vaccination.

Lung cancer screening coverage in Japan, 2007 to 2022: trends, sex gaps, and attainment of 60%

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Background : Coverage of lung cancer screening in Japan is suboptimal and uneven. We quantified national and prefectural trends, sex gaps, and the probability of reaching 60% coverage.

Methods : Repeated cross-sectional ecological study of prefecture and national coverage for adults 40+, Japan 2007 to 2022. We modelled each prefecture for the total population and by sex using Bayesian time-series regression. Outcomes were the annual percentage-point change and the probability of attaining 60% coverage. We report 95% credible intervals. Public aggregate data; ethics not required.

Results : National coverage rose from 25.6% in 2007 to 42.1% in 2022; annual change 1.10 percentage points per year (95% CrI 0.52 to 1.57). Men increased from 28.0% to 46.0% (1.21, 0.56 to 1.74) and women from 21.3% to 38.7% (1.01, 0.79 to 1.21). The probability of reaching 60% by 2028 was 9.7% nationally, 32.6% for men, and 0.3% for women. For the total population, two prefectures were likely to reach 60% by 2028: Yamagata 97.8% and Miyagi 84.5%. Elsewhere, probabilities were generally low. For men, five prefectures were likely: Yamagata 98.9%, Miyagi 93.5%, Yamanashi 92.8%, Aomori 88.6%, and Niigata 87.4%. For women, only Yamagata was likely (93.8%). Faster growth aligned with higher attainment across prefectures. Exemplar annual changes for the total population were Yamagata 1.59 (0.96 to 2.15) and Tokyo 1.37 (0.81 to 1.82), with slower change in Hokkaido 0.80 (0.20 to 1.27).

Conclusions : Coverage is rising but remains far from 60% in most prefectures, with large and persistent sex gaps. Near-term progress hinges on accelerating female participation and prioritising lagging prefectures while sustaining gains in high-performing regions. Routine prefecture-level tracking of attainment probabilities can guide targeted outreach, resource allocation, and evaluation.