The relationship between cardiovascular diseases death, temperature, and housing type in Nagoya

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Background : The relationship between temperature and risk of cardiovascular disease (CVD) death is nonlinear, the risk increases not only at low temperatures but also at high temperatures. In Japan, it is thought that some people, especially those living in apartment buildings, are unable to use air conditioners appropriately for economic reasons. Thus, it is possible that the risk of cardiovascular death due to temperature differs depending on the house type. The purpose of this study is to examine the relationship between CVD death emergency transports, temperature, and housing type.

Methods : The study included cases in which patients were transported by ambulance from houses due to CVD death between April 2016 and March 2022 in Nagoya city, Japan. To compare CVD death in detached houses and apartment buildings, we used age-standardized incidence rates (SIRs) for CVD death from detached houses which were determined from the number of observed cases relative to the number of expected cases calculated by the age-adjusted incidence rates of those from apartment buildings. To examine the combined effect of temperature and housing type, the SIRs were calculated stratified by daily maximum temperature quintiles.

Results : There were 29,136 cases (15,944 in detached houses and 13,192 in apartment buildings). The SIRs for apartment buildings compared to detached houses were significantly higher in all temperature zones, including the coldest (SIR 1.12, 95%CI 1.08-1.16). There was a trend toward higher SIR with higher temperatures (p for trend = 0.02), and in the hottest temperature zone, the incidence rate for apartment buildings was 24% higher than for detached houses (SIR 1.24, 95%CI 1.19-1.29).

Conclusions : Apartment buildings had a higher risk of CVD transport compared to detached houses, and the risk increased as the temperature rose. This may be due to the issue of inappropriate use of air conditioning in apartment buildings during hot seasons.

Gut Microbiota Diversity and CT-Defined Muscle Quality in Older Japanese Women

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The gut microbiota has been implicated in metabolic health; however, association with detailed body composition remain unclear. We examined whether alpha diversity is associated with BMI, subcutaneous and visceral fat areas, and muscle area/quality. We analyzed cross-sectional baseline data from a population-based cohort of Japanese women aged 63–85 years. Gut microbiota was profiled by 16S rRNA sequencing, and alpha diversity indices (Chao1 richness, Shannon diversity) were computed. Body composition was quantified by CT: subcutaneous and visceral fat areas, and psoas and thigh muscle areas. Psoas muscle quality was indexed by CT attenuation (Hounsfield Units; higher HU=lower fat infiltration, lower HU=higher fat infiltration). Multivariable linear regression adjusted for age and BMI; additional models adjusted for total daily energy expenditure derived from basal metabolic rate and physical activity. Chao1 index and Shannon index showed no significant associations with BMI, subcutaneous fat, visceral fat, or thigh muscle areas. No clear associations were observed for total psoas muscle area. In contrast, a 1-SD higher diversity was positively associated with larger high-density psoas muscle area (Chao1 β =0.99, 95%CI 0.76–1.23, p < 0.001; Shannon β =0.47, 95%CI 0.23–0.72, p < 0.001) and inversely with smaller low-density (fat-infiltrated) psoas muscle area (Chao1 β = −0.62, 95%CI −0.75 to −0.49, p < 0.001; Shannon β = −0.31, 95%CI −0.45 to −0.18, p < 0.001). These associations persisted after additional adjustment for total daily energy expenditure. In this cohort of older Japanese women, gut microbial richness and diversity were independently associated with muscle quality—larger high-density and smaller fat-infiltrated psoas areas. These findings support a potential gut–muscle axis beyond effects on body fat or energy expenditure and may inform strategies to preserve skeletal muscle quality with aging.

Estimating HIV prevalence Among Foreign migrant Workers in Japan

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Background : Japan is a rapidly ageing and declining population. To counter the labour shortage, Japanese government has promoted a large involvement of migrant workers from East and Southeast Asia. Although Japan largely managed infectious disease control, including HIV/AIDS, increasing number of foreign migrant workers in Japan poses a threat in monitoring the risk structure.

Objectives : We aimed to develop a model that characterizes the length of stay of foreign workers in Japan based on immigration and emigration data. We then used year-on-year prevalence data to estimate the prevalence of HIV among migrant workers in Japan.

Methods : The primary source countries of foreign workers in Japan are Vietnam, China, Indonesia, the Philippines, and Thailand. For each country, data on the number of newly arrived foreign labors and the duration of their stays were collected from the Immigration Services Agency of Japan. The distribution of the length of stay for emigrants was modelled using a gamma distribution. Maximum likelihood estimation was carried out to quantify the migration model. Estimated HIV incidence was obtained from official estimate of the UNAIDS, except for China. As for China, a back-calculation of HIV incidence was conducted based on historical record of AIDS cases reported by China CDC. Multiplying the prevalence by migrant volume data, we estimated the number of HIV-infected foreign workers in Japan.

Results : The number of HIV-infected foreign workers was shown to have increased over time.

Conclusion : Increasing migrant workers contributed to increasing HIV-infected foreign workers in Japan. The proposed approach could potentially help further exploring the effectiveness of possible countermeasures including screening policy upon entry.

Characterizing the e-cigarette market in South Korea using a data triangulation approach

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Introduction : The South Korean e-cigarette market is expanding rapidly, in part because limited evidence on the market landscape has hindered centralized regulation. This study aimed to characterize the market landscape to inform future regulatory and public health strategies.

Methods : A data triangulation approach was employed, integrating market volume data from Euromonitor (2019–2023), user-reported brand usage from the International Tobacco Control (ITC) Korea Survey (2023), and product searches of online and offline retailers conducted between December 2024 and February 2025. Products identified across two or more sources were classified as top-selling. Descriptive analyses were conducted on product characteristics, including device type, flavor, nicotine labeling, packaging, and regulatory compliance (e.g., health warnings).

Results : A total of 267 e-cigarette products were identified, with 44 classified as top-sellers. Flavored products dominated the market, with fruit flavors most prevalent (68.4% of all products). Disposable devices were prominent among top-sellers (47.7%), and some offered up to 25,000 puffs. Over half of the products contained synthetic nicotine or did not disclose the nicotine source, which may allow them to avoid tobacco-specific regulations. Only about one-third of products had standardized age restriction labeling, and health warnings were inconsistently applied. Packaging frequently resembled food or general consumer goods.

Conclusion : The Korean e-cigarette market is characterized by flavored, high-capacity disposables, synthetic nicotine, and weak regulatory compliance, exposing significant policy blind spots. Strengthened regulation is urgently needed, including classifying synthetic nicotine products as tobacco products, standardizing warning labels, and restricting flavors and packaging. Establishing a centralized surveillance system will also be critical for monitoring emerging products and supporting evidence-based control measures.

Sleep debt and proteinuria in adults with short sleep duration: a retrospective cohort study

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Background : Short sleep duration is a risk factor for various non-communicable diseases (NCD). Although several studies suggested that sleep debt, defined commonly as a difference in sleep duration between weekdays and weekends, might have a clinical relevance, its clinical impact on NCDs remains to be elucidated.

Objective : To assess an association between sleep debt and incident proteinuria among adults with short sleep duration.

Methods : This retrospective cohort study included 4162 employees of the University of Osaka aged 19–60 years who reported ≤ 6 hours of sleep duration on weekdays, with eGFR ≥ 60 ml/min/1.73 m² and negative or trace results of dipstick urinary protein at their first annual health checkup between April 2013 and March 2017. The main exposure was sleep debt index defined as the difference in self-reported sleep duration between weekdays (≤ 5 and 5–6 hour) and weekend (≤ 5, 5–6, 6–7, 7–8, 8–9 and ≥ 9 hour), which was categorized into five groups of ≤ 0, 1, 2, 3, and ≥ 4. The outcome was incident proteinuria (dipstick urinary protein ≥ 1+) until March 2024. The association between the sleep debt index and incident proteinuria was assessed using Cox proportional hazards models adjusted for clinically relevant factors.

Results : Among 1907 male and 2255 female employees with median age of 36 years (interquartile range 30–44), sleep debt index of ≤ 0, 1, 2, 3, and ≥ 4 was reported in 750 (18.0%), 1,549 (37.2%), 1,171 (28.1%), 449 (10.8%), and 243 (5.8%) employees, respectively. During a median observational period of 5.3 years, incident proteinuria was observed in 459 (11.0%) employees. A multivariable-adjusted model showed that high sleep debt index was associated with incident proteinuria (adjusted hazard ratios [95% confidence intervals]: 1.00 [reference], 1.00 [0.76, 1.32], 1.05 [0.79, 1.40], 1.10 [0.76, 1.57], and 1.57 [1.05, 2.36], respectively).

Conclusion : Sleep debt was associated with incident proteinuria.