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【Overview presentation】

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# Development of predictive models for amyloid positivity using routine health check-up items in older Japanese adults

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| Overview presentation | **Background:** With the emergence of disease-modifying therapies for Alzheimer's disease (AD), early identification of high-risk individuals is increasingly important. Blood-based biomarkers (BBMs) are promising tools for screening in elderly populations, but the low prevalence of amyloid pathology limits their positive predictive value, and large-scale BBMs testing increases costs. This study aimed to develop a low-cost predictive model using health check-up items to enrich amyloid-positive individuals in a general population. We also evaluated characteristics of BBMs to identify those suitable for early detection.<br>**Methods:** Participants were recruited from the Hirosaki Dementia Cohort (Iki-iki study) and the Iwaki Health Promotion Project (IHPP) in 2024. BBMs (Aβ40, Aβ42, tau, p-tau181, p-tau217, and NfL) were measured using the Automated Immunoassay System HISCL™-5000. Amyloid positivity was defined by plasma |

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| | Aβ42/40. Logistic regression models incorporating health check-up items were used to predict amyloid positivity. The characteristics of BBMs were evaluated by Spearman's rank correlation.<br>**Results:** Among Iki-iki study participants (N=695), amyloid positivity was 29.5%. A model including health check-up items predicted amyloid positivity (AUC=0.802). In the IHPP cohort (N=1122), all BBMs were correlated with each other. Except for Aβ42/40, BBMs were associated with renal function, and all correlated with age. Notably, high p-tau217 was rare in the Aβ-negative individuals, whereas low p-tau217 was frequently observed in Aβ-positive individuals.<br>**Conclusion:** Models based on health check-up items demonstrated potential for a simple, cost-effective screening approach for amyloid positivity. The characteristic correlation between Aβ42/40 and p-tau217 suggests Aβ42/40 may become positive earlier, supporting its utility for early AD detection. Further validations against PET or CSF testing are needed, but combining health check-ups with early AD biomarkers may be a promising approach for early intervention.<br>**Disclosure:** This study was supported by grants JPMJCE1302, JPMJCA2201, JPMJPF2210, JP16dk0207025, and JP21dk0207053. The authors declared no competing interests. |
| Session | Theme A: β-Amyloid Diseases / A04.h. Imaging, Biomarkers, Diagnostics: CSF- and blood-based biomarkers (SHIFT 02-412) |