

## 論 文 要 旨

Development of a risk prediction score for hypertension incidence  
using Japanese health checkup data

Mariko Kawasoe

Hypertension is a risk factor for cardiovascular disease. We developed a simple scoring method for predicting future hypertension using health checkup data. A total of 41,902 participants aged 30–69 years, without baseline hypertension, who underwent annual health checkups (mean age,  $52.3 \pm 10.2$  years; male, 47.7%) were included. They were randomly assigned to Derivation ( $n=27,935$ ) and Validation cohorts ( $n=13,967$ ) at a ratio of 2:1. In the Derivation cohort, we performed multivariable logistic regression analysis and assigned scores to each factor significantly associated with 5-year hypertension. We evaluated the predictive ability of the scores using area under the curve (AUC) analysis, then applied them to the Validation cohort to assess their validity. Scores requiring blood sampling ranged from 0 to 14, consisting of seven indicators (age, body mass index, blood pressure, current smoking, family history of hypertension, diabetes, and hyperuricemia). Scores not requiring blood sampling ranged from 0 to 12, consisting of five indicators (the above indicators, except diabetes and hyperuricemia). The score not requiring blood sampling was better; blood sampling did not improve diagnostic ability. The AUC of the score not requiring blood sampling was 0.76, with sensitivity and specificity of 0.82 and 0.60, for scores  $>6$  points. The incidence of hypertension gradually and constantly increased (from 0.9% to 49.6%) as the score increased from 0 to  $>10$ . Analysis in the Validation cohort yielded similar results. We developed a simple and useful clinical prediction model to predict the 5-year incidence of hypertension among a general Japanese population. The model had reasonably high predictability and reproducibility.

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