

Linking cohort data with administrative health data to develop a new hypertension prediction model to aid precision health approach

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Introduction

Hypertension is a common medical condition, affecting 1 in 5 Canadians, and is a major risk factor for heart attack, stroke, and kidney disease. Predicting the risk of developing incident hypertension may help to inform targeted preventive strategies.

Objectives and Approach

Identification of major risk factors and incorporation into a multivariable model for risk stratification may help to identify individuals who are at highest risk for developing incident hypertension and would potentially benefit most from intervention. The goal of the proposed research is to develop a robust hypertension prediction model for the general population using the Alberta Tomorrow Project (ATP) cohort data linked with Alberta's administrative health data. ATP is Alberta's largest population health cohort, contains baseline data on socio-demographic characteristic, personal and family history of disease, medication use, lifestyle and health behavior, environmental exposures, physical measures and bio samples.

Results

Alberta's administrative health data additionally provides information on health care utilization, enrollment, drugs, physician services, and hospital services. A prediction model for hypertension will be developed using logistic regression where information on candidate variables for the model will be gathered from ATP data and outcome (incident hypertension) will be ascertained from administrative health data (physicians/practitioner claim data and hospital discharge abstract data). Lacking follow-up information in current ATP data has laid the foundation of linking the two data sources through an anonymous unique person identifier (e.g. PHN) that will eventually provide follow-up information on ATP participants who are free of hypertension at baseline developed the disease as well as information on other potential variables.

Conclusion/Implications

The proposed prediction model will help to identify individuals at highest risk for developing hypertension and those who may benefit most from targeted healthy behavioral interventions and/or treatment. Such identification of high risk people may help prevent hypertension as well as the continuing costly cycle of managing hypertension and its complications.

