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Methods of defining hypertension in electronic medical records: validation against national survey data

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Background

Electronic medical records (EMR) can be a cost-effective source for hypertension surveillance. However, diagnosis of hypertension in EMR is commonly under-coded and warrants the needs to review blood pressure and antihypertensive drugs for hypertension case identification. To advocate for the use of EMR data for research, we developed methods for defining hypertension using diagnosis codes, blood pressure measurements and antihypertensive drug prescription

Approach

We included all the patients actively registered in The Health Improvement Network (THIN) database, UK, on 31 December 2011. Three case definitions using diagnosis code, antihypertensive drug prescriptions and abnormal blood pressure, respectively, were used to identify hypertension patients. We compared the prevalence and treatment rate of hypertension in THIN with results from Health Survey for England (HSE) in 2011.

Results

Compared with prevalence reported by HSE (29.7%), the use of diagnosis code alone (14.0%) underestimated hypertension prevalence. The use of any of the definitions (38.4%) or the combination of antihypertensive drug prescriptions and abnormal blood pressure (38.4%) had the higher prevalence than HSE. The use of diagnosis code or two abnormal blood pressure records within a 2-year period (31.1%) had similar prevalence and treatment rate of hypertension with HSE.

Conclusion

Different definitions should be used for different study purposes. The definition of 'diagnosis code or two abnormal blood pressure records with a 2-year period' could be used for hypertension surveillance in THIN.

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