

Research Briefing

Channelling of antihypertensive drugs after launch and implication for comparative effectiveness studies

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Key points

- the characteristics of patients who receive drugs for the same indication in real life may differ across different drug types
- this difference needs to be taken into account when measuring the effectiveness of drugs, in non-randomized studies
- the present study evidenced that patients who received angiotensin converting enzyme inhibitors (ACEIs) or calcium channel blockers in real life differed from patients who received a comparator, regarding blood pressure and smoking status
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Background

While randomized trials are primarily designed to provide evidence on efficacy of new drugs, observational comparative effectiveness research using electronic health record data provides evidence on effects and safety of drugs in routine medical practice. Early evaluation of effects of emerging therapies is challenging mainly due to confounding (channeling bias).

Objective

We aimed to explore time trends in differences in confounder distributions between users of antihypertensive drugs.

Methods

Firstly, a focused literature review on PUBMED was conducted on observational comparative effectiveness studies of antihypertensive drugs (angiotensin converting enzyme inhibitors (ACEIs), calcium channel blockers (CCBs) vs. diuretics (D) and beta blockers (BB)) since the launch of ACEIs/CCBs. For each study, information was extracted on baseline characteristics, duration of follow-up, exposure and outcome. Secondly, differences in patient characteristics between exposure groups were assessed over calendar years.

Results

Forty studies published between 1996 and 2013 were included for the analysis. Major patient characteristics often reported in the studies were age, gender, body mass index (BMI), baseline systolic and diastolic pressure, smoking, diabetes, dyslipidaemia, stroke, ischaemic heart disease, and heart rate. The mean difference in baseline systolic and diastolic blood pressure and smoking status between ACEI/CCB users and D/BB decreased overtime. No pattern was observed for age, gender, diabetes, and BMI.

Conclusion

Groups of antihypertensive medications users become more similar for some patient characteristics at later times after launch. However, this was not observed for all characteristics and no time window could be identified that is optimal for observational comparative effectiveness research.