

PERSPECTIVES ON RECENT STUDIES IN HYPERTENSION

The Impact of the Pandemic on CVD Management

REECHA SOFAT, CAROLINE DALE AND ROHAN TAKHAR
Department of Pharmacology and Therapeutics, University of Liverpool, UK



Reecha Sofat

Cardiovascular disease (CVD) is the leading cause of mortality and morbidity worldwide and this is steadily rising.¹ Amongst risk factors for CVD, hypertension remains the most prevalent, although if detected, along with other modifiable risk factors it can act to reduce the burden of CVD. In the UK screening for modifiable risk factors, including hypertension, type 2 diabetes and high lipids was the norm, however the Covid-19 pandemic disrupted this usual screening. Detection and then treatment of risk factors was also disrupted. What is unknown is what the downstream effects of this missed detection and treatment may be on the CVD burden including increased risk of myocardial infarction and stroke.

One way in which risk factor management is actioned is through medicines. In lieu of waiting for increased cases of MI and stroke, using medicines as a proxy for risk factors, we investigated changes in dispensed medicines used to treat CVD risk factors over the course of the COVID-19 pandemic, and assessed the impact of not treating these risk factors on future CVD events.

The UK's comprehensive national medical records track health over the life course for >60 million people in England, Scotland and Wales^{2,3,4}. Using these records, we investigated the impact of the COVID-19 pandemic on medication usage. Specifically, eleven sub-groups of people were analysed, defined by their use of medicines used to treat CVD and its risk factors, such as high blood pressure, high cholesterol and diabetes. Medication records were matched via a non-identifying unique pseudo-identifiers to individual-level socio-demographic characteristics. We analysed trends in first (incident) medication

use across 1.32 billion records of community-dispensed CVD medications from England, Scotland and Wales between April 2018 and July 2021. By highlighting monthly trends in incident medication use, we aimed to understand changes in the number of new starters on drugs used to control CVD risk factors of diabetes, hypertension and high lipids.

There was a marked decline in the number of CVD preventative medicines dispensed at the start of the COVID-19 pandemic.⁵ Specifically, 491,306 fewer individuals initiated antihypertensive treatment than expected based on 2019 levels. Further analysis revealed that this reduction could result in 13,662 additional CVD events, including 2,281 myocardial infarctions and 3,474 strokes, should individuals remain untreated over their life-course. Incident use of lipid-lowering medicines also decreased by 16,744 patients per month compared to 2019. By contrast, incident use of medicines to treat type-2 diabetes increased by approximately 623 patients per month, although the dispensing of insulin medication remained steady.

Our analysis suggests that the number of first initiation of medicines to prevent CVD greatly declined during the COVID-19 pandemic and has not returned to pre-pandemic levels. This is despite recovery in the dispensing of medications after the initial declines following the first UK lockdown. Whilst these results are indicative of trends in the UK it is of relevance to many countries with similar health systems.

Our results highlight the urgent need for methods to identify and treat individuals who have missed treatment and remain untreated. Without this, large numbers of excess future CVD events will add to the indirect impacts of the pandemic. Hypertension remains the foremost risk factor for CVD and can be easily screened for and actioned through medicines which are cheap and effective. Policy makers and health care leaders need to now focus on recovery from the pandemic and target the health needs of the future generations which if not detected now will increase the burden of hypertension and it's associated increased risk in CVD.

Our work is not without limitations. Importantly, we analysed 'real world' medication data that were not collected for research purposes. It is possible that artefacts may exist within the data due to differences in data collection, processing or transfer, and these may vary over time and by source. Estimates of the impact of a reduction in medicine use on CVD events rely on assumptions that may change over time and in direct response to the pandemic. The final impact of the pandemic on CVD events in the UK is highly dynamic and will be influenced by many factors that could not be captured by our model.

We have shown that using medicines as a proxy for disease can complement investigations using electronic health records and disease diagnostic codes. Such analyses can be incorporated into methods to identify individuals who have missed treatment, which is urgently required to avoid additional future CVD events. This medicines approach provides policy makers with an additional lens to monitor healthcare pathways, providing a rapid response tool in the event of a future pandemic or other similar disruption event.

References

1. Roth GA et al Global Burden of Cardiovascular Disease and Risk Factors, 1990-2019: Update from the GBD 2019 Study J Am Coll Cardiol. 2020 Dec, 76 (25) 2982-3021
2. Wood, A., et al. Linked electronic health records for research on a nationwide cohort of more than 54 million people in England: data resource. BMJ 373, n826 (2021).
3. Bennie, M., Malcolm, W., McTaggart, S. & Mueller, T. Improving prescribing through big data approaches-Ten years of the Scottish Prescribing Information System. Br J Clin Pharmacol 86, 250-257 (2020).
4. Lyons, R.A., et al. The SAIL databank: linking multiple health and social care datasets. BMC Med Inform Decis Mak 9, 3 (2009).
5. Dale, C.E., Takhar, R., Carragher, R. et al. The impact of the COVID-19 pandemic on cardiovascular disease prevention and management. Nat Med (2023).

Reecha Sofat - R.Sofat@liverpool.ac.uk

WORLD HYPERTENSION DAY DAY **May 17th 2023**

*Measure Your Blood Pressure Accurately
Control it, Live Longer.*

Initiated by the World Hypertension League

www.whleague.org