

# An audit of pharmacological management of cardiovascular risk factors in chronic kidney disease in a general practice

Sam Gerami<sup>1,2</sup>, Gemma Buttigieg<sup>1,3</sup>, Benjamin Mitchell<sup>1,4</sup>

<sup>1</sup>Australian National University Medical School, Canberra, Australian Capital Territory, <sup>2</sup>Gosford Hospital, Gosford, New South Wales, <sup>3</sup>Wagga Wagga Base Hospital, Wagga Wagga, New South Wales, and <sup>4</sup>Canberra Hospital, Canberra, Australian Capital Territory, Australia

**Background:** Chronic kidney disease (CKD) is a major contributor to burden of disease worldwide, with most of the fatal burden attributed to secondary cardiovascular disease. Prevalence of CKD in Australia is approximately 10%, with Indigenous Australians having a disproportionate CKD risk of more than twice the non-Indigenous population<sup>1</sup>. CKD contributes to cardiovascular risk factors such as hypertension and is also an independent risk factor for cardiovascular disease<sup>2</sup>. In accordance with international guidelines, Royal Australian College of General Practitioners (RACGP) recommends treatment with antihypertensive and lipid-lowering agents (statins) in moderate-to-severe CKD<sup>3</sup>, however the implementation of this may be variable.

**Aim:** To carry out an audit of pharmacological management of cardiovascular risk factors, specifically use of statins and antihypertensives, in an urban general practice setting in Canberra, Australia; and to generate appropriate recommendations for improving practice.

**Methods:** After reviewing guidelines and results of previous audits<sup>4</sup>, a standard of 65% prescription of statins and 95% prescription of antihypertensives was set as realistically achievable. The standard was set prior to data collection. Patient data from an urban GP clinic in Canberra was used in accordance with NHMRC guidelines and local clinic Privacy Policy. Patients 18-75 years old with laboratory proven moderate-to-severe range CKD (as defined by RACGP guidelines) who were active patients at the practice were included in the audit. Retrospective patient records, including medication lists and discussion notes, were examined to look for prescription, offer of treatment, or documentation of reason for not initiating treatment (for example low blood pressure). Results were discussed with the clinical staff including the GP supervisor and the practice pharmacist, and recommendations for improving practice were generated.

**Results:** There were 28 patients with moderate-to-severe CKD identified using the audit's selection criteria. 19 (68%) patients were prescribed a statin, while 24 (85%) were prescribed antihypertensive agents. From 9 patients not given a statin 1 was in palliative care, 1 was offered a statin but declined, and 1 patient was incorrectly assessed as not requiring a statin due to normal blood cholesterol. 6 patients were not offered a statin. From 4 patients not given an antihypertensive, 1 had low blood pressure and managed by a cardiologist, and 1 was previously on antihypertensives but the medication was ceased and not restarted after a hospital admission. 2 patients were not offered an antihypertensive. Overall, out of 28 patients 25 (89%) were given appropriate prescription for antihypertensives, and 22 (78%) were given appropriate prescription for statins. Patients receiving suboptimal care were flagged for review by their GP.

**Conclusion:** The practice was close to standard for use of antihypertensives, and above standard for statins. However, there is still room for improvement. It is important that any recommendations for change consider the practice context and feasibility of implementation<sup>5</sup>. Our recommendations included communicating the results to the rest of the practice, creating opportunities for practice pharmacist to discuss similar instances of prescription error or suboptimal care, and incorporating documentations goals of care as well as appropriate linking to guidelines within the electronic medical records system used by the practice.

## References:

- 1 Australian Bureau of Statistics. Australian Aboriginal and Torres Strait Islander Health Survey: Biomedical Results, 2012-13 (Commonwealth of Australia 2014).
- 2 Gansevoort, R. T. *et al.* Chronic kidney disease and cardiovascular risk: epidemiology, mechanisms, and prevention. *The Lancet* **382**, 339-352, doi:[https://doi.org/10.1016/S0140-6736\(13\)60595-4](https://doi.org/10.1016/S0140-6736(13)60595-4) (2013).
- 3 The Royal Australian College of General Practitioners. Guidelines for preventive activities in general practice, 9th edn. (2018).

- 4 Murray, R. & Murray, W. Audit of patients with moderate to severe chronic kidney disease (eGFR <45) to improve cardiovascular risk factors. (2019).
- 5 Hut-Mossel, L., Ahaus, K., Welker, G. & Gans, R. Understanding how and why audits work in improving the quality of hospital care: A systematic realist review. *PLOS ONE* **16**, e0248677, doi:10.1371/journal.pone.0248677 (2021).