

# General practitioners' Vitamin-K anticoagulants monitoring is associated with better blood pressure control in patients with hypertension

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## Introduction

Novel oral anticoagulants (NOAC) are believed to be superior to Vitamin-K antagonists (VKA) in atrial fibrillation (AF) or venous thromboembolism (VTE); thus, INR monitoring is no longer needed. However, many of these patients also suffer from other diseases, such as hypertension. INR monitoring by a General Practitioner (GP) on a regular basis may give opportunities to provide care for other chronic conditions. Therefore, we want to evaluate the impact of VKA monitoring by GPs on the control of blood pressure (BP) in hypertensive patients.

## Methods

We analyzed data from the Swiss FIRE (Family Medicine ICPC Research using Electronic Medical Records) project database, representing 113,335 patients from 2009 to 2013. We included patients treated with antihypertensive agents having at least 2 consultations within the last year. Mean BP values were compared between patients with and without VKA treatment. Multivariable regression modeling was used to control for age, sex, number of chronic comorbidities, follow-up time and number of yearly consultations.

## Results

The co-variables for 8,323 hypertensive patients with a mean (SD) age of 67.7 (14.2) years (48.8% females) and treated by 64 GPs were available for the analysis. Out of these patients, 874 (10.5%) had undergone VKA treatment. The mean (SD) number of GP consultations per year was significantly higher in the VKA group (10.0±7.2) compared to the non-VKA group (6.2±5.5) ( $p<0.001$ ). Mean systolic and diastolic BP were significantly lower in the VKA group (131.5±15.8/77.0±8.6 mmHg) compared to their controls without VKA (141.3±17.3/82.7±10.5 mmHg) ( $p<0.001$  for both). Also, after adjusting for possible confounders, systolic and diastolic BP remained significantly lower in the VKA group, reaching a mean (95%-CI) difference of -9.6 (-10.8;-8.3) and -2.3 (-3.0;-1.6) mmHg, respectively ( $p<0.001$  for both).

## Conclusion

In a large sample of hypertensive patients in Switzerland, those undergoing VKA therapy have a significantly higher GP visitation rate. This is likely due to VKA monitoring. VKA treatment is independently associated with lower systolic and diastolic BP. This suggests that VKA monitoring by GPs gives them opportunities to provide care for other chronic health conditions, such as hypertension. We conclude that our findings should be taken into account when considering switching from VKAs to NOACs in order to maintain the quality of care, particularly in patients with multimorbidity.