

Significant improvement in blood pressure control among older adults with hypertension in rural South Africa: findings from a prospective 5,000-patient cohort, 2014–2019

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Background: Sub-Saharan Africa is undergoing an epidemiologic transition dominated by a widespread epidemic of hypertension (HTN). Since 2014, we began studying a cohort of 5,059 individuals in rural South Africa, to describe the evolution of HTN among older adults, and understand the impact of targeted interventions by local health systems.

Purpose: Characterize the updated prevalence and incidence of HTN in a prospective cohort between baseline (2014) and follow-up (2019), and describe changes in blood pressure (BP) treatment.

Methods: HTN was defined as systolic blood pressure (SBP) ≥ 140 mm Hg, diastolic blood pressure (DBP) ≥ 90 mm Hg, or self-reported medication use. Prevalence and incidence rates were calculated using inverse-probability weights to account for mortality and attrition. Poisson regression was used to identify predictors of disease incidence. We calculated the percentage of individuals with controlled versus uncontrolled HTN (with 140/90 mm Hg as cutoff), self-reported medication use, and compared these values between 2014 and 2019.

Results: Compared to 2014 (n=5,059), study participants in 2019 (n=4,176) were expectedly older (mean age 61.7 \pm 13.1 vs 66.0 \pm 13.0 years) but had similar sex distribution (53.6% vs 53.5% females) and weighted rates of obesity (mean BMI 27.5 \pm 10.0 vs 27.0 \pm 6.5), with higher rates of smoking (9.1% vs 11.8%) and diabetes (11.1% vs 13.7%). The HTN prevalence did not increase over time (58.4% vs 59.8%), and there was a signif-

icant reduction in mean SBP (138.0 vs 128.5 mm Hg, p<0.001) and DBP (82.1 vs 79.6 mm Hg, p<0.001). In the subgroup of hypertensive individuals with measured BP and self-reported medication use in both 2014 and 2019 (n=796), the percentage who had controlled HTN on medications increased from 44.5% to 62.3% while the percentage who had uncontrolled HTN on medications or uncontrolled HTN not on medications decreased (48.5% to 32.2% and 7.2% to 3%, respectively) from 2014 to 2019 (Figure 1). The HTN incidence was 6.2 per 100 person-years, which was lower than prior reports from this area (8.4 per 100 person-years in 2010–2015); in multivariable models, age was the only significant predictor of incident HTN. In the subgroup of individuals who were healthy at baseline with measured BP and self-reported medication use in 2014 and 2019 (n=2,257), very few developed HTN by 2019 (15.2%); of those, the majority already had controlled HTN and was on medications by 2019 (Figure 2).

Conclusions: The prevalence of HTN did not increase in this aging cohort; in fact there was a clinically and statistically significant decline in mean BP and a substantial increase in the proportion of hypertensive patients with controlled HTN taking medications between 2014 and 2019. The prevalence of obesity, smoking and other risk factors did not decrease over time, suggesting that the mean BP decrease in this cohort is likely due to increased access and adherence to medications, promoted by local health systems.

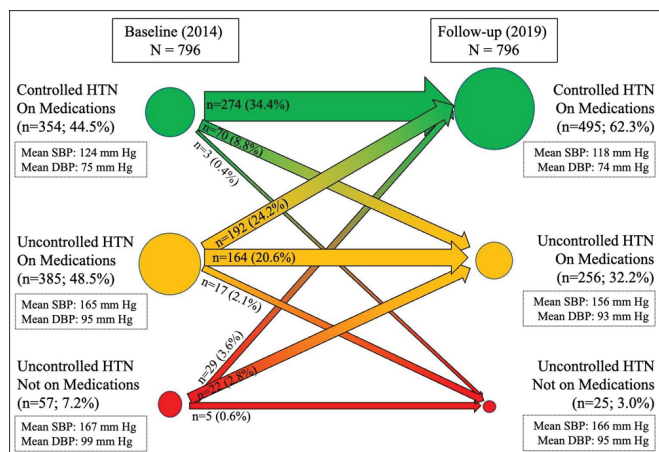


Figure 1. BP Control among Patients with Known HTN

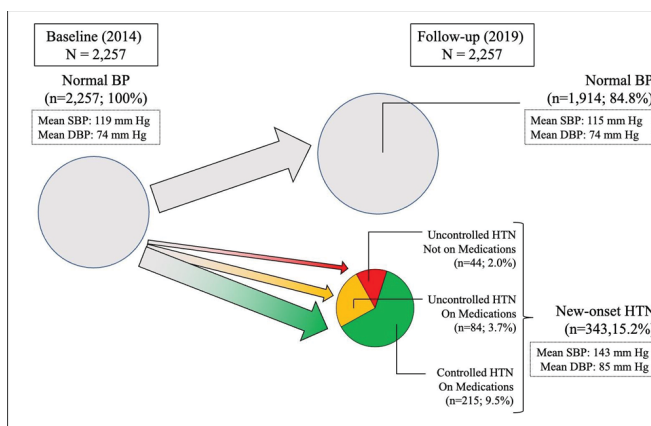


Figure 2. BP Control among Patients with New HTN