High prevalence of non-dipping patterns among black Africans with uncontrolled hypertension: a secondary analysis of the CREOLE trial

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Background: Dipping of blood pressure (BP) at night is a normal physiological phenomenon. However, a non-dipping pattern is associated with hypertension mediated organ damage, secondary forms of hypertension and poorer long-term outcome. Identifying a non-dipping pattern may be useful in assessing risk, aiding the decision to investigate for secondary causes, initiating treatment, assisting decisions on choice and timing of anti-hypertensive therapy, and intensifying salt restriction.

Objectives: To estimate the prevalence and factors associated with non-dipping pattern and determine the effect of three 6-months anti-hypertensive regimens on the dipping pattern among Black African hypertensive patients.

Methods: This was a secondary analysis of the CREOLE Study which was a randomized, single blind, three-group trial conducted in 10 sites in 6 Sub-Saharan African countries. The participants were 721 Black African patients, aged between 30 and 79 years, with uncontrolled hypertension and a baseline 24-hour ambulatory blood pressure monitoring (ABPM). Dipping was calculated from the average day and average night systolic blood pressure measures.

Results: The prevalence of non-dipping pattern was 78% (564 of 721). Factors that were independently associated with non-dipping were: serum sodium >140mmol/l (OR=1.72, 95% CI: 1.17–2.51, p-value 0.005), a higher office systolic BP (OR=1.03, 95% CI: 1.01–1.05, p-value 0.003) and a lower office diastolic BP (OR=0.97, 95% CI: 0.95–0.99, p-value 0.03). Treatment allocation did not change dipping status at 6 months (McNemar's χ^2 0.71, p-value 0.40).

Conclusion: There was a high prevalence of non-dipping among Black Africans with uncontrolled hypertension. ABPM should be considered more routinely in Black Africans with uncontrolled hypertension, if resources permit, to help personalise therapy. Further research is needed to understand the mechanisms and causes of non-dipping pattern and if targeting nighttime BP improves clinical outcomes.

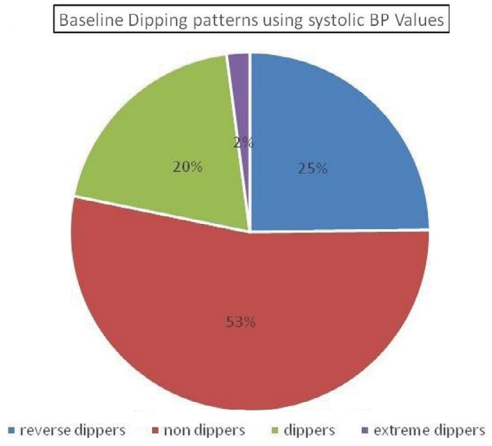

Figure 1