

Abstract

Research on Emerging Infections Offers an Opportunity for Public Health Intelligence on Non-Communicable Diseases: Hypertension Prevalence in Volunteers for an Ebola Vaccine Trial in Northern Sierra Leone [†]

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Abstract: Introduction: The West African Ebola outbreak of 2014–2016 necessitated clinical trials in communities with limited health data. The EBOVAC-Salome Ebola vaccine trial is ongoing in the largely rural Kambia District in northern Sierra Leone. To gain a baseline insight into our local noncommunicable disease (NCD) epidemiology, we examined screening blood pressure (BP) measurements in trial volunteers. **Methods:** BP involved taking multiple readings using an Omron M6 sphygmomanometer in rested individuals. We classified BP by the European 2018 ESC/ESH guidelines: optimal BP, normal or high-normal BP, or hypertension (systolic ≥ 140 mmHg \pm diastolic ≥ 90 mmHg) with Grade 1, 2, or 3 (G1HT, G2HT, G3HT) severity levels. **Results:** Of 870 volunteers, 220 (25.3%) had optimal BP, 236 (27.13%) had normal BP, and 250 (28.7%) had high-normal BP. The remaining 164 (18.9%) were hypertensive. By gender, 16.5% (109/668) of males and 27.2% (55/202) of females were hypertensive. Among hypertensives, 62.2% had G1HT, 18.3% had G2HT, and 19.5% had G3HT. Twenty-two (13.4%) were previously diagnosed, with eight on treatment. Forty-one had isolated systolic hypertension. The prevalence significantly increased with age ($p < 0.0001$), with 5.3% (27/514) in the age-category 18–29 y, 18.6% (29/156) in 30–39 y, 49.4% (84/170) in 40–59 y, and 80% (24/30) in ≥ 60 y. The severity also increased with age, with 54.9% of G1HT, 76.7% of G2HT, and 90.7% of G3HT being aged ≥ 40 y. In total, 36.6% (60/164) of hypertensives were overweight or obese. **Discussion:** In an economically disadvantaged, Ebola-affected rural West African community where NCD might not traditionally be thought prevalent, almost one in five adults were found to be hypertensive and were mostly unaware. Additionally, nearly one in three had high-normal BP.

Together, these findings portend a potent, largely silent, and potentially growing NCD threat, and illustrate that infectious disease (ID) studies could provide opportunities for pragmatic NCD data. As both ID and NCD are putatively promoted by overlapping pro-inflammatory and poverty-driven factors, a cross-paradigmatic “multiplex” approach, whereby ID studies prospectively incorporate NCD-related sub-studies (and vice versa), might optimize limited research resources for enhanced public health benefit.

Keywords: Sierra Leone; Ebola; non-communicable disease; hypertension; West Africa; clinical trial; participant screening; Africa; emerging infectious diseases.



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