

Epilepsy in Africa: caution and optimism



In this issue of *The Lancet Neurology*, Anthony Ngugi and colleagues¹ report important insights into the epidemiology of epilepsy in sub-Saharan Africa through a multicountry, population-based study of epilepsy prevalence and risk factors. Although population-based reports of epilepsy prevalence data from Africa are readily available,² substantial prevalence heterogeneity—sometimes even within the same country—has led to many questions about the various assessment methods used and the representativeness of the studied populations. For example, estimates could be inflated because of a propensity to undertake such studies in geographic pockets where disease burden is fairly high.³

By using standardised methods in five study sites in Kenya, South Africa, Uganda, Tanzania, and Ghana, and with a sample size of more than 500 000 people, Ngugi and colleagues¹ showed that epilepsy prevalence in one region of sub-Saharan Africa can be half that in another (adjusted prevalence 7.0 per 1000 people [95% CI 6.2–7.4] in Agincourt, South Africa; 14.8 per 1000 people [13.8–15.4] in Ifakara, Tanzania). Age-specific and sex-specific heterogeneity were evident, but insights into gradations in disease burden across the countries studied were elucidated by the other risk factors identified for epilepsy, which were differentially distributed across the sites. The largest relative increases in prevalence in children were associated with difficulties feeding, crying, or breathing after birth (odds ratio 10.23, 95% CI 5.85–17.88); antenatal adverse events (2.15, 1.53–3.02); and head injury (1.97, 1.28–3.03). In adults, the greatest relative increases were associated with admission to hospital with malaria or fever (2.28, 1.06–4.92); and exposure to *Toxocara canis* (1.74, 1.27–2.40), *Toxoplasma gondii* (1.39, 1.05–1.84), or *Ochocerca volvulus* (2.23, 1.56–3.19).

For all the contributions Ngugi and colleagues' work¹ makes, many questions remain unanswered. Their study—similar to almost every population-based study in Africa—delineates only the burden of active convulsive epilepsy, which could represent less than half the overall cases of epilepsy.⁴ The epidemiology of seizure disorders that are not characterised by convulsive seizures in Africa is largely unknown. The population attributable fractions for abnormal antenatal periods

and difficulties feeding, crying, or breathing after birth were estimated only in patients who were younger than 18 years, although most epilepsy identified originated in childhood, suggesting that the contributions of perinatal and antenatal problems to subsequent epilepsy were probably substantially underestimated. Further epidemiological assessments are needed to improve understanding of why epilepsy is particularly prevalent in men in some regions. The association between epilepsy and malnutrition has been previously described in cross-sectional studies⁵ and other study designs are needed to delineate directionality or causality, or both. The association between epilepsy and onchocerciasis has been described before.⁶ However, although Ngugi and colleagues' data¹ might lend some evidence to the theory that *O. volvulus* causes epilepsy, without substantive biological data supporting this hypothesis, the debate on this important issue will continue.

On the basis of Ngugi and colleagues' findings,¹ epilepsy epidemiologists and public policy makers interested in programmes to reduce the burden of epilepsy in defined regions or countries should be cautious about the extrapolation of data from other regions to their own, because demographics and risk-factor distribution obviously matter. The confirmation that substantive heterogeneity in epilepsy prevalence exists within Africa has serious implications for disease estimates in the Global Burden of Disease Study 2010, which relied heavily on such estimates.⁷

The findings¹ provide some good news for global epilepsy advocates. Because a substantial proportion of the epilepsy burden in the disparate African countries was attributable to perinatal and antenatal problems, it might be reasonable to anticipate that African countries that are making substantial progress with the Millennium Development Goals for maternal and child health will experience a decrease in epilepsy prevalence in the years to come.⁸ Furthermore, malaria eradication activities and programmes for integrated control of parasitic diseases could potentially have the same effect of decreasing the overall epilepsy prevalence in future generations. Finally, despite the somewhat lukewarm reception the UN High-level Meeting on Non-communicable Diseases received from some African countries, programmes targeting

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risk factors for hypertension in Africa might also lower the prevalence of epilepsy. In view of the challenges of epilepsy care provision in resource-limited countries⁹ and the premature mortality associated with epilepsy in less-developed settings,¹⁰ preventive activities are clearly needed.

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