



Cerebrospinal meningitis: lessons learnt from Africa

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Pere Domingo and colleagues¹ reviewed two centuries of struggle against meningococcal disease, from the discovery of the bacterium to current management and preventive measures. We would like to enrich this interesting Review with additional breakthroughs made in Africa from the 1950s to the 1970s, which helped people to face the health disaster of epidemic meningitis in sub-Saharan countries.

In the meningitis belt, initially described by Lapeyssonnie,² meningococcal disease was endemoepidemic, with huge seasonal outbreaks in the first months of the year causing up to 1000 cases per 100 000 inhabitants. In remote places with a poor and inconsistent medical supply, mortality was very high, especially in the youngest children, which had a strong effect on society (appendix). To address this issue, an innovative public health approach was developed in the 1960s to treat patients with single-dose sulfamethoxypyridazine, administered by local caregivers according to well designed protocols.³ After the emergence of resistance to sulfamethoxypyridazine, oily chloramphenicol became the best option, fulfilling pharmacological and bactericidal criteria. Oily chloramphenicol was rapidly shown to be highly efficient in sub-Saharan Africa, saving numerous lives for decades after its WHO recommendation in the late 1970s.^{4,5} This drug was replaced in 2004 by single-dose ceftriaxone, which is as efficient as oily chloramphenicol, cheaper, and widely available.⁶

The other major progress in controlling massive epidemics of cerebrospinal meningitis A and C in Africa was the development and industrial production of a bivalent

polysaccharide vaccine, and its widespread use starting as early as possible after the epidemic onset. Pragmatic mass trials in Africa and Brazil conducted by Mérieux and others showed the feasibility and efficacy of this vaccine strategy.⁷

Based on an efficient surveillance and alert system, mass vaccine campaigns and early single-dose treatment remain the most efficient public health tools against meningococcal disease in sub-Saharan Africa. For the Review by Domingo and colleagues¹ to be complete, these two Africa-developed advances must be put into the limelight as well as the other advances mentioned.

This omission might be due to the frequent scotoma on francophone scientific publications by medical search engines and readers who do not speak French. This language bias has been recently acknowledged in a Comment by Anne Roca and colleagues in *The Lancet Global Health*.⁸

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- 1 Domingo P, Pomar V, Mauri A, Barquet N. Standing on the shoulders of giants: two centuries of struggle against meningococcal disease. *Lancet Infect Dis* 2019; **19**: e284–94.
- 2 Lapeyssonnie L. Cerebrospinal meningitis in Africa. *Bull World Health Organ* 1963; **28** (suppl): 1–114 (in French).
- 3 Lapeyssonnie L, Louis J, Bonnardot R, Lefevre M. Ist note concerning the activity of a single dose of sulfamethoxypyridazine by intramuscular route in the treatment of meningococcal cerebrospinal meningitis. *Med Trop (Mars)* 1961; **21**: 129–33 (in French).

- 4 Rey M, Ouedraogo L, Saliou P, Perino L. Minute treatment of cerebro-spinal meningitis by unique intra-muscular injection of chloramphenicol (oily suspension). *Med Mal Infect* 1976; **6**: 120–24 (in French).
- 5 Lewis RF, Dorlencourt F, Pintel J. Long-acting oily chloramphenicol for meningococcal meningitis. *Lancet* 1998; **352**: 823.
- 6 Nathan N, Borel T, Djibo A, et al. Ceftriaxone as effective as long-acting chloramphenicol in short-course treatment of meningococcal meningitis during epidemics: a randomised non-inferiority study. *Lancet* 2005; **366**: 308–13.
- 7 Triau R, Merieux C. Against meningococcus: a new form of vaccination. *Bull Acad Natl Med* 1979; **163**: 277–88 (in French).
- 8 Roca A, Boum Y, Wachsmuth I. Plaidoyer contre l'exclusion des francophones dans la recherche en santé mondiale. *Lancet Glob Health* 2019; **7**: e701–02.

Melioidosis

In their Review, Emma Birnie and colleagues¹ discussed the global burden of melioidosis, which is a treatable infectious disease with several grave consequences. They based their findings on global incidence and mortality due to melioidosis. However, their findings are based on a small number of patients whose deaths were attributed to the disease without them having been diagnosed with it. A study² reported that only four people were diagnosed with melioidosis in the Odisha state, India, between 2008 and 2014. However, in the past 5 years over 100 people have been diagnosed at our center.

Timely diagnosis and appropriate treatment of melioidosis could save many lives and increase quality of life for numerous people. We add a few points to the review by Birnie and colleagues.¹

First, melioidosis can present with highly atypical features, including isolated mediastinal lymphadenopathy and deep-organ abscess; therefore, it could be misdiagnosed as tuberculosis or lymphoma. To establish a diagnosis, at the All India Institute of Medical Sciences, Bhubaneswar, India, we sometimes have to resort to an invasive sampling method, such as endobronchial ultrasound (EBUS)-guided needle aspiration.