



Wednesday 7 June 2023



Sequelae following an epidemic of meningococcal meningitis in Niger

Abdoul-Aziz Idrissa¹, Salifou Atti², Roger Kiamvu Wasaulua³, Serges Kazadi⁴, Ousmane Guindo⁵, Georges Tonamou⁶, Iza Ciglonecki⁷, ***Matthew Coldiron**⁸

¹Epicentre, Maradi, Niger; ²Ministry of Public Health, Magaria, Niger; ³Médecins Sans Frontières (MSF), Magaria, Niger; ⁴MSF, Niamey, Niger; ⁵Epicentre, Niamey, Niger; ⁶MSF, Dakar, Senegal; ⁷MSF, Geneva, Switzerland; ⁸Epicentre, Paris, France

*matthew.coldiron@epicentre.msf.org

Introduction

MSF supported Niger's Ministry of Health (MoH) in responding to a serogroup C meningococcal meningitis epidemic in Magaria and Dungass Districts in 2022. WHO's global roadmap for defeating meningitis by 2030 emphasises appropriate care for meningitis sequelae, but this is not yet part of standard epidemic response. Meningitis sequelae in the African meningitis belt are poorly described, hampering access to rehabilitation services. To better orient future care for sequelae, we performed a follow-up survey of survivors 9 months after the 2022 epidemic.

Methods

WHO case definitions were used during the epidemic. Patient-level line-lists detailing village of origin were obtained from authorities, and results of polymerase chain reaction testing on cerebrospinal fluid were integrated. Guided by village leaders, study nurses attempted to visit cases at home to assess for sequelae. Nurses administered questionnaires asking about history including seizures and subjective vision and hearing loss; and carried out physical examinations assessing anosmia, weakness, and paralysis. Data were collected tablets using REDCap software. Prevalence of sequelae among survivors was calculated.

Ethics

This study was approved by the MSF Ethics Review Board and by the National Ethics Committee for Health Research of Niger.

Results

1001 suspected cases and 50 deaths (case fatality rate, CFR, 5.0%) originating in 230 villages were recorded on the line-lists. 469 cases (47%) had lumbar puncture, and 220 (47%) had a causative agent identified, including 192 cases of *Neisseria meningitidis* serogroup C (NmC) and 22 *Streptococcus pneumoniae*. After excluding 82 cases living in villages difficult to access, we attempted to trace 919 cases, of whom 570 (62%) were found and consented to interview. Among these cases, 49 had died (CFR 8.6%). Among the cases visited, 151 had confirmed NmC and 10 *S. pneumoniae*. Among the 521 surviving cases evaluated, 62 (12%) had sequelae; the most common were hearing loss (29), paralysis (16), epilepsy (9), and developmental regression (6). Among the 138 surviving confirmed cases of NmC, 25 (18%) had one or more sequelae.

Conclusion

We documented a higher CFR than reported during the epidemic, and a high burden of sequelae among survivors, particularly among those with confirmed NmC infection. To our knowledge, this is the second time that meningitis sequelae have been documented in Niger; these findings help identify priorities for integrating meningitis after-care into epidemic responses. MSF and the MoH should work to ensure linkages to long-term care and support for meningitis survivors and their caregivers. We were unable to find all cases, so the true prevalence of sequelae among survivors may differ. This follow-up survey used simple methods adapted for in-home evaluation, and formal audiometry may have led to detection of more subtle hearing loss.

Conflicts of interest

None declared.