Meningococcal disease burden in African meningitis belt

Andre Arsene Bita Fouda[1], Anderson Latt[2], Clement Lingani[3], Abdoulaye Sinayoko, Abdoulaye[4], Lorenzo Pezzoli[5], Fernandez Katya[5], Antoine Durupt[5], Ado Bwaka[3], Marie-Pierre Preziosi[4], Charles Shey Umaru Wiysonge[1], Benido Impouma[1].

Author correspondent: Andre Arsene Bita Fouda, abita@who.int

[1]World Health Organization African region, Brazzaville, Congo

[2]World Health Organization Dakar Emergency Hub, Senegal

[3]World Health Organization Inter Country Support Team West Africa, Ouagadougou, Burkina Faso

[4]World Health Organization County office of Democratic Republic of Congo

[5]World Health Organization Headquarters Geneva, Switzerland

Background

Despite significant progress made in combating meningitis over the past 20 years, bacterial meningitis epidemics remains a major global public health challenge. The highest burden of bacterial meningitis rests in the Sub-Saharan African meningitis belt. The objective of this study is to describe the meningitis epidemiological situation in the meningitis belt from 2011 to 2022.

Methods

A retrospective analysis of meningitis data collected from 2011 to 2022 in countries of the Sub-Saharan meningitis belt.

Results

From 2011 to 2022 280,579 meningitis suspected cases 20,206 deaths (case fatality rates = 7.2 %) were reported in 24 out of 26 countries of meningitis belt involved in the meningitis enhanced network. From 2011 to 2022 incidence of suspected cases and case fatality rates were reduced. Countries that reported high incidence of suspected cases are Democratic Republic of Congo (DRC) 101,100 (36.0%), Burkina Faso 5BFA) 34,621 (12.0%), Nigeria 26,649 (9.5%), Niger 22,949 (5.8%), Cameroon 16,272 (4.8%), Chad 13,460 (4.3%), Ethiopia 12,100 (3.0%), Ghana 10,825 (%), and Togo 6,793 (2.4%).

The incidence of meningitis suspected cases decreases from 22,581 in 2011 to 20,221 in 2022. Whereas the CFR decreased from 8.8% to 5.8%. These reductions happened during the meningococcal conjugate A vaccine rollout conducted from 2010 -2022. During this period the predominant meningitis pathogens founds were *Streptococcus pneumoniae* (*S.pneumo)* (53%), *Neisseria meningitidis C* (NmC) (22%), *Neisseria meningitidis W* (*NmW*) (19%), *Neisseria meningitidis X* (*NmX*) (7%), *Neisseria meningitidis A* (*NmA*) (2%). Meningitis outbreaks are caused mainly by *NmC* (ST-10217; ST-103; ST-175), *NmW* (ST-11), and *S.pneumo* (serotypes 1,5). Since 2018 no case of *NmA* was found. *S.pneumo* is the most predominant pathogen among children under five years while *Neisseria meningitidis* are affected mostly people aged five years and over. Males are the most affected. Non-A outbreaks have continued to affect the region. Countries most affected are Niger, Nigeria, Ghana, Togo, Cameroon, Chad, Democratic Republic of Congo, and Burkina Faso.

Conclusions: Meningococcal disease remains a burden in African meningitis belt with thousands of cases and death reported yearly. *Neisseria meningitidis and streptococcus pneumoniae* are most predominant pathogens. Whereas Nigeria and Niger are the most affected.

Key words: Meningitis, Meningitis belt, Neisseria meningitidis, Africa