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УДК 616.831.9-002.1(548.7)(669)

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A COMPARATIVE STUDY ON PREVALENCE OF MENINGITIS BETWEEN SRI LANKA AND NIGERIA

Introduction

Meningitis is the inflammation of the tissues surrounding the brain and spinal cord. It is usually caused by infection. It can be fatal and requires immediate medical care. Meningitis can be caused by several species of bacteria, viruses, fungi and parasites. Most infections can be transmitted from person to person. Injuries, cancers and drugs cause a small number of cases. Bacterial meningitis is the most common dangerous type of meningitis and can be fatal within 24 hours. There are four main causes of acute bacterial meningitis: Neisseria meningitis, Streptococcus pneumoniae, Haemophilus influenza, Streptococcus agalactiae (group B streptococcus). These bacteria are responsible for more than half of the deaths from meningitis globally and they cause other severe diseases like sepsis and pneumonia. Common symptoms of meningitis are neck stiffness, fever, confusion or altered mental status, headaches, nausea and vomiting. N. meningitis can cause sporadic cases, focal outbreaks (institutional based) and large epidemics. Three serogroups A, B, C, W135, X and Y account for the majority of invasive disease and are capable of initiating epidemics [1, 2, 3, 4].

Goal

The aim of this article is to study the prevalence of Meningitis, its severity, risk factors, immunization against disease and prophylaxis of the disease in both countries Sri Lanka and Nigeria.

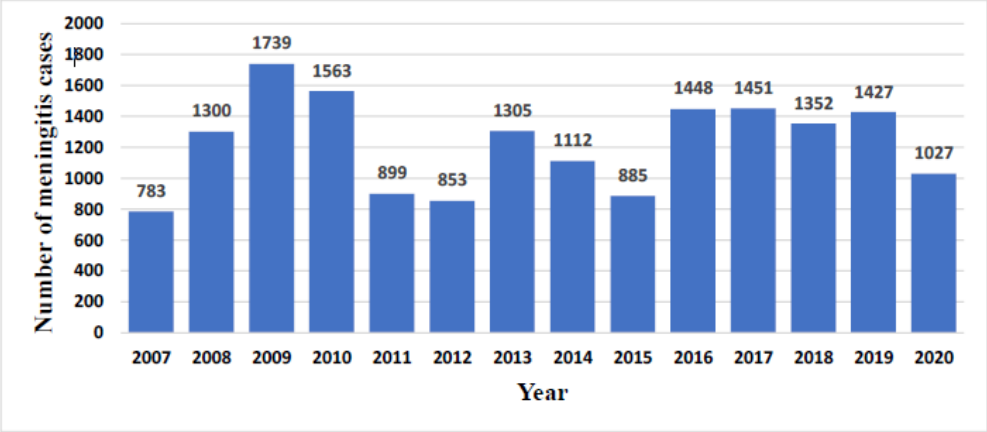
Material and methods of research

Research papers, epidemiological reports regarding Meningitis issued by the respective departments of epidemiology and infectious diseases of both countries were studied and analyzed.

The results of the research and their discussion

Meningitis within Sri Lanka

Bacterial meningitis due to Neisseria meningitis is one of the leading infections causing high morbidity and mortality globally, including in Asia. Invasive meningococcal infection is reported as sporadic cases in Sri Lanka. Bacterial meningitis has been a notifiable disease in Sri Lanka since 2005 (figure 1).



(Data taken from weekly bulletin, Epidemiology Unit, Sri Lanka)[4]
Notification criteria were clinically suspected or/and clinically and laboratory-confirmed cases.

Figure 1 – Annual meningitis cases in Sri Lanka from 2007–2020

A sporadic cluster of 11 cases was documented from July 2019 to February 2020. Cumulative cases for the year 2023 was 566 as per the weekly epidemiological report issued by Epidemiology Unit of Ministry of Health of Sri Lanka. Immunization for Meningitis is carried out in three doses of vaccine Penta (DTP, HepB, Hib) OPV for infants on completion of 2, 4 and 6 months [5].

Meningitis within Nigeria

Meningitis is an epidemic prone disease for immediate notification on the IDSR platform in Nigeria. Epidemics in the meningitis belt were traditionally associated with Neisseria meningitides. Cases can occur throughout the year, with epidemics occurring during the dry season. For example, in 1996, N. meningitidis sero-group A killed 11,717 of the 109,580 recorded cases, with subsequent epidemics in 2003, 2008, and 2009. After mass vaccination campaigns using a conjugate vaccine targeted at sero-group A (MenAfriVac) began following its introduction in 2010 across African countries, sequential outbreaks of sero-group C were observed in 2013 and 2014 in north western Nigeria with more than 8,500 cases and 550 deaths, followed by what was possibly the largest global sero-group C epidemic ever reported with 14,518 suspected cases between December 13, 2016, and June 15, 2017. Between 1 October 2022 and 16 April 2023, Nigeria reported a total of 1686 suspected cases of meningitis, including 124 deaths, for a case fatality ratio (CFR) of 7% [6].

The outbreak of serogroup C disease in two consecutive years from Nigeria suggests emergence of a new strain. Nigeria has implemented interventions to combat meningitis, including introducing the meningococcal A (MenA) conjugate vaccine against NmA from 2011-2022 and the vaccine has been included in the country's routine immunization schedule since 2019. However, there are still annual reports of meningitis cases in the country that are associated mostly with meningococcus serogroup C [6].

Conclusions

In conclusion it was observed that Nigeria is at a higher risk for Meningitis than Sri Lanka. However, the number of cases indicated that possible Meningitis outbreaks cannot be ruled out in both the countries. In Sri Lanka, meningitis is listed as a notifiable disease, however, meningococcal disease is not included and not considered as endemic. Sri Lanka needs to enhance diagnostic facilities and establish laboratory facilities for serogrouping of N. meningitidis for surveillance as well as early identification of outbreaks.

The vaccines implemented in Nigeria do not protect against all the types (strains) of the prevailing strains of the bacteria. For these reasons, there is still a chance that bacterial meningitis can still be acquired even following vaccination. Increased surveillance for multiple serogroups in the region is needed, along with consideration of vaccination with conjugate vaccines rather than for NmA alone.

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