Emerging clone of meningococcal bacterium affecting middle-aged and older adults

Case scenario

You are attending grand rounds at your local hospital. An emergency medicine physician is presenting a nightmare scenario. A man in his early 60s presented with progressive cellulitis of his left foot and lower leg. Emergency surgery was performed for presumptive necrotizing fasciitis. An intraoperative Gram stain of the muscle tissue was done. The surgeon expected to find clusters or short chains of Gram-positive cocci consistent with streptococci, but instead Gram-negative diplococci were found. Why? The laboratory identified *Neisseria meningitidis* serogroup W. Further testing revealed the strain belonged to the emerging clonal complex ST-11. This was not typical meningococcal disease. Fortunately, the man was saved with surgical debridement, intensive care for septic shock, and intravenous ceftriaxone.[1]

Evidence

Invasive meningococcal disease is caused by a number of serogroups, of which A, C, Y, and W are covered by quadrivalent meningococcal vaccines. Within each serogroup there are different types of clonal complexes. Since 2010 there has been an increase in meningococcal W (MenW) disease in a number of countries around the world, including Canada, owing to a strain belonging to the emerging clonal complex ST-11.[2]

The first case of MenW ST-11 disease in Canada was identified in 1970.[3] This was an isolated case. Between 2009 and 2013 more than 90% of MenW disease was caused by strains of the traditional clonal complex ST-22. Yet from 2014 to 2016, 75% of invasive MenW isolates were the emerging clonal complex ST-11.[2] This is a trend to watch.

The reason this emerging meningococcal disease is concerning is that it affects a population that might not have received quadrivalent meningococcal vaccine—middle-aged and older adults—and it has an atypical presentation. In a study of 129 cases from England and Wales, half were diagnosed in patients aged 45 years or older and about 25% had atypical presentations such as pneumonia, septic arthritis, and epiglottitis.[4] In teenagers it can present with nausea, vomiting, and diarrhea.[5] In Canada between 2009 and 2016 there were only 22 cases documented by the Public Health Agency of Canada's National Microbiology Laboratory, but 31% of cases were in patients 41 to 60 years old and 31% were in those older than 60.[2]

La traduction en français de cet article se trouve à **www.cfp.ca** dans la table des matières du numéro **d'août 2017** à la **page e365.**

Bottom line

Meningococcal disease due to MenW ST-11 is rare, but it is on the rise in Canada and around the world. It can affect any age group including middle-aged and older adults, can have an atypical presentation, and can cause serious illness. If you ever suspect this, work with your laboratory staff and, if confirmed, involve local public health, as it is important to gather information on this emerging disease. Prophylactic antibiotics and vaccination could be considered for close contacts because the disease has the potential to spread.

References

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CCDR Highlights summarize the latest evidence on infectious diseases from recent articles in the *Canada Communicable Disease Report*, a peer-reviewed online journal published by the Public Health Agency of Canada.

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