55 (92.7%) of those with H1N1 versus 2/55 (3.6%) without H1N1 had a neutrophil/lymphocyte ratio of less than 2.\textsuperscript{3} Even though we increased sensitivity by adding the LUC to the lymphocyte count, we found that the sensitivity was only 9.0%, without differentiating value. We have no clear explanation for these discordant results, but it is possible that part of the difference is due to selection bias since they excluded those with positive chest x-rays, a productive cough or other symptoms they felt were not consistent with H1N1 disease. It was unclear how they chose the controls.

It is likely that our results can be extrapolated to other settings since total white cell counts, and proportion of lower settings since total white cell counts, and proportion of lower counts in our study were similar to those reported by others,\textsuperscript{4,7} as was the proportion of patients with thrombopenia.\textsuperscript{1,7} Furthermore we minimized misclassification bias by sending three specimens for PCR testing not done by all previous studies.

We conclude that parameters of the complete blood count cannot be used to institute earlier treatment and prevention precautions in those with suspected H1N1 disease.

References

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Dear Editor,

In 2000, there was an outbreak of sequence type (ST)-11, serogroup W meningococcal disease in Mecca, Saudi Arabia, with subsequent global spread. Since then, serogroup W meningococcal infection has become an increasing problem in many parts of the world, including Latin America. In this Journal, the presence of the Hajj 2000-associated clone, which is characterized as 2-145:P1.5,2:F1-1:ST-11 (cc11) and 165 type 31, was recently reported in Brazil,\textsuperscript{1} as were other highly-related ST-11 serogroup W isolates in Brazil\textsuperscript{1,2} and Argentina.\textsuperscript{3}

In Rio de Janeiro State, Brazil, serogroup W meningococcal disease was uncommon until 2003, when a sudden increase of W:2a Neisseria meningitidis sporadic cases and outbreaks occurred.\textsuperscript{4} From 1988 to 2009, 12,917 (1988–1999 = 8906 [3728 culture-proven] and 2000–2009 = 4011 [1060 culture-proven]) cases of meningococcal disease were reported to the Rio de Janeiro State Department of Health. Although serogroup B N. meningitidis was recorded as the leading cause of invasive meningococcal disease before 2000, it has gradually been replaced by isolates of serogroup C, which have been responsible for over 80% of culture-confirmed cases since 2008. In this context, there were 34 culture-positive serogroup W cases, 14 from 1988 to 1999 and 20 from 2003 to 2009, representing an average of 1.2 and 2.9 cases per year, respectively. From 2003 to 2009, an additional 44 PCR-positive serogroup W cases were reported, 30 (68%) of which occurred during 2004–2005.

We analysed the genetic and antigenic diversity of serogroup W N. meningitidis and serotype 2a isolates of other serogroups from patients during 1988–2005 in Rio de Janeiro State with the goal of understanding the sudden increase in serogroup W disease and its role in meningococcal disease outbreaks. N. meningitidis serogroup was determined by slide agglutination with specific rabbit antisera (BD Difco, Maryland, USA). Serotyping was performed at the National Meningitis Reference Centre, MLST and antigen sequence typing of the genes encoding PorB, PorA, and FetA were performed on 31 serogroup W and 21 serotype 2a (B = 2; C = 19) invasive isolates and directly from 37 CSF samples available from which...
Successful clone exhibiting multiple capsules associated with outbreak and field clusters (see text).
Figure 1  Geographic location of meningococcal disease cases in the city of Nova Iguaçu during the 2004 serogroup W outbreak.
Hajj-associated clone by means of fine molecular typing. These results suggest the expansion of local isolates and the emergence of new genetic lineages of serogroup W that differ from the Hajj-associated clone, which is believed to have arisen from serogroup C to W capsular switching. Whether these differences reflect the evolution of the Hajj clone over time or multiple serogroup C to W capsular switches is not known but might be discernible by DNA sequencing of the capsular operon of well-selected isolates. The re-emergence of N. meningitidis belonging to serogroup W and to the ST-11 clonal complex has been observed globally since 2010 in regions such as the African meningitis belt, France, and Chile, giving rise to new questions about the origin and expansion of these isolates. Our study underscores the need to conduct molecular surveillance of meningococcal disease to monitor the impact of meningococcal immunization programs and determine whether use of multivalent meningococcal vaccines is warranted.

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Competing interests

Dr. Harrison receives funding from the Centers for Disease Control and Prevention and the National Institute of Allergy and Infectious Diseases. He has received research support and lecture fees from Sanofi Pasteur; lecture fees from Novartis Vaccines; and has served as a consultant to GlaxoSmithKline, Merck, Novartis Vaccines, Sanofi Pasteur, and Pfizer. Dr. Harrison’s financial ties with industry were terminated before he became a voting member of the Advisory Committee on Immunization Practices in July 2012.

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References