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LETTER TO THE EDITORS

Insufficient protection by *Neisseria meningitidis* vaccination alone during eculizumab therapy

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Sirs,

Spurred by the reported spectacular results of eculizumab treatment in atypical hemolytic uremic syndrome (aHUS) due to aberrations in the complement system, an increasing number of children will receive this treatment in future. The main adverse effect of this therapy is an increased susceptibility to meningococcal infection due to inhibition of the complement system's membrane-attack complex. In patients with paroxysmal nocturnal hemoglobinuria treated with eculizumab, the reported occurrence of meningococcal infection is between 0% and 1.5% [1–3]. These data, concerning adult patients, cannot be extrapolated to children because the age-specific incidence of meningococcal disease is much higher in children.

According to the medication guide of the U.S. Food and Drug Administration, a tetravalent unconjugated polysaccharide vaccine (serogroups A, C, Y, W135) has to be provided at least 2 weeks before the first dose of eculizumab. In our opinion, this approach is not sufficient for prevention in many countries, because none of the available vaccines contains a serogroup B antigen [4]. The serogroup distribution among meningococcal infections in The Netherlands is presented in Fig. 1. Since June 2002, a conjugated vaccine against serogroup C has been included in the national immunization program. In 2009, 84% of isolates belonged to serogroup B, 7% to serogroup C, and the remaining to other serogroups, such as X, Y, and W135 [5]. Thus, the advised vaccination only offers limited protection. The peak incidence of serogroup B meningococcal disease is in children younger than 5 years and between the age of 15 to 19 years. Based on the risk of meningococcal infection in children treated with eculizumab and the high prevalence of serogroup B disease that cannot yet be prevented by vaccination, penicillin prophylaxis should not only be considered [6] but strongly advised to patients. Beside this, vaccination with a conjugated vaccine might give better protection than the unconjugated polysaccharide vaccine [7]. Serogroup B prevalence is highest not only in The Netherlands but in the rest of Europe and other parts of the world [8]. The best strategy depends on the distribution of meningococcal serogroups and the availability of vaccines in different countries [9].

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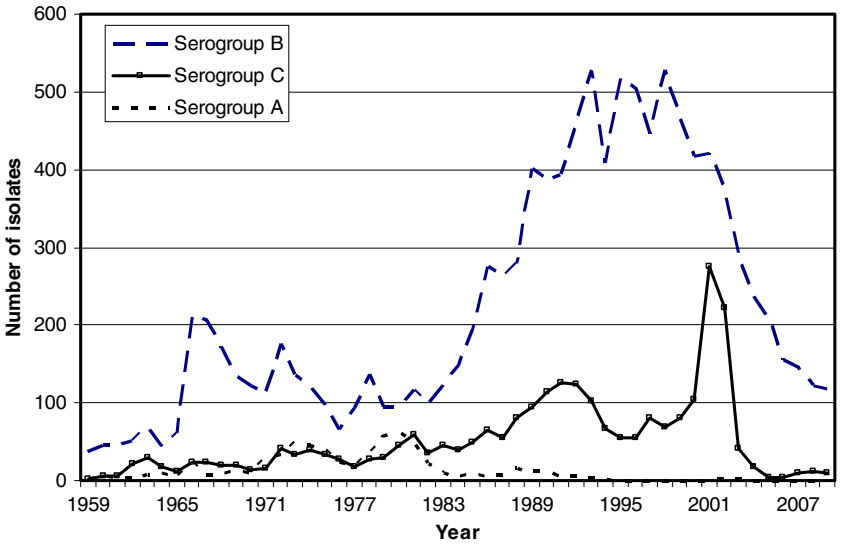

Fig. 1 Distribution of meningococcal serogroups 1959–2009 (adapted from Netherlands Reference Laboratory for Bacterial Meningitis, used with permission)

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