

# CHANGING EPIDEMIOLOGY OF MENINGOCOCCAL INVASIVE DISEASE IN THE CZECH REPUBLIC CAUSED BY NEW CLONE *Neisseria meningitidis* C:2a:P1.2(P1.5), ET-15/37

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## SUMMARY

Invasive meningococcal disease, caused mainly by *Neisseria meningitidis* B, occurred only sporadically in the Czech Republic for a long period, and the use of meningococcal polysaccharide vaccine was never indicated. This situation changed in 1993, when a new meningococcal clone appeared. By means of sero/subtyping (using Whole Cell ELISA) *Neisseria meningitidis* C:2a:P1.2(P1.5) was quickly revealed to be the causative agent of this unusual epidemiological situation. ET typing by multilocus enzyme electrophoresis showed the prevalence of the ET-15 electrophoretic type, which belongs to the ET-37 complex. This new clone had never been identified in the Czech Republic at least since 1973. The new clone caused an increase in the incidence of invasive meningococcal disease in the army campuses in the eastern part of the country and two local invasive meningococcal disease outbreaks in civilian population at the beginning of 1993. In May 1993, the highest age-specific incidence in the most affected district was found in the age group of 15-19 years (52.1 per 100 000), while the respective age specific incidence for the whole Czech Republic was 1.9 per 100 000. The vaccination campaign started in the most affected district at the beginning of June 1993 and was focused on the most affected age group, 15-19 years. After this targeted vaccination campaign the number of invasive meningococcal disease decreased in this district statistically significantly. The new clone *Neisseria meningitidis* C:2a:P1.2(P1.5) is causing not only a new epidemiological situation, but also a new clinical situation, characterized by more serious and frequently atypical courses of invasive meningococcal disease with a high incidence of Waterhouse-Friderichsen syndrome and meningococcal sepsis. A high fatality rate was found for the clone *Neisseria meningitidis* C:2a:P1.2(P1.5) (20 %) compared to the "normal" fatality rate of the "non C" invasive meningococcal disease (8.8 %) in 1993. The new clone *Neisseria meningitidis* C:2a:P1.2(P1.5) spread between 1993 and 1995 to the whole country, nevertheless, to date no similar epidemiological situation was identified, as was that in two districts in spring 1993. A more rapid increase in the age specific morbidity occurred recently in the age group of 1-4 years and in adult age groups as well.

**Key words:** invasive meningococcal disease, *Neisseria meningitidis* C:2a:P1.2(P1.5), *Neisseria meningitidis* ET-15/37, new meningococcal clone, changing epidemiology

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