Epidemiology of meningococcal disease in Poland - summary of the routine surveillance data from 1970 - 2004

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Background

Poland has been producing statistics on invasive meningococcal disease based on clinical reports since 1946. However, up to 2003 only meningococcal meningitis was reportable.

Data from 1946 – 1989 (before the 8th ICD revision was introduced) included up to 50% of wrongly classified cases and are considered unreliable. Only aggregate data are available for the time period 1970 – 1993.

Although both polysaccharide and conjugated vaccines are licensed in Poland, they are not used routinely.

Material and Methods

1. Surveillance system:
   - Compulsory system run by a network of public health departments (sanitary-epidemiological stations. SES), who conduct epidemiological investigation and implement control measures
   - Covers meningococcal meningitis/encephalitis and meningococcal septicaemia reported by physicians to local SES

Lab data: hospital laboratory results
   - Some hospitals send samples to the National Reference Laboratory (www.nizp.edu.pl)
   - In 1994 – 2004 74% of cases were confirmed by culture

Data flow:
   - Aggregated data forwarded bimonthly to national level and published (www.pzh.gov.pl/epimied)
   - Compiled data forms forwarded quarterly to regional SES and to the National Institute of Hygiene
   - Clinical records up to now not reconciled with the reference laboratory records on a national scale

The present study is based on aggregate data for 1970–2004 and case-based data for 1994–2004

2. Statistical analysis:
   Incidence was analysed by Poisson model comprising age group, gender, urban/rural residence and year of diagnosis

Results

Incidence of meningococcal meningitis during 1970–2004 ranged between 0.2 and 1.2 per 100,000 (Fig. 1). Decline observed in recent years is consistent with the decline of birth rate and the mortality from meningococcal infections (data from the Central Statistical Office).

In 1994 – 2004, 1389 cases were registered, 817 males (mean Inc. 0.39 per 100,000) and 572 females (mean Inc. 0.26). Adjusted RR for females, compared to males, was 0.71 (95% CI 0.64 – 0.79).

In 1994 incidence was lower in urban areas (RR= 0.71 95% CI 0.60 – 0.86), but it decreased to a greater level in rural setting to non significant urban/rural difference in 2004.

Age specific incidence trends are shown on Figure 2.

Conclusions

1. Incidence of meningococcal disease has been declining in Poland in 1994–2004 as evidenced both by the surveillance of meningococcal meningitis and the mortality data.
2. The decrease in overall incidence of meningococcal meningitis reflects mainly low birth rate and decreases in age specific incidence in 0–14 years old.
3. The incidence in 15–19 years age group increases, the reason for which remains unclear and merits further studies.
4. Percent of disease caused by group C seems to be increasing although for 66% of cases the serogroup was not confirmed.
5. Greater case ascertainment and serogroup/serotype identification is necessary.