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MENINGOCOCCAL DISEASE 2010

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In Denmark, invasive meningococcal disease (MD) is monitored via the clinical notification system (Form 1515) and the Neisseria and Streptococcal Reference Laboratory which receives meningococcal isolates from the departments of clinical microbiology.
In 2010 the Department of Epidemiology received 73 notifications concerning patients with invasive MD.
A reminder had to be sent out to ensure notification in 30 (41%) of the cases.
Table 1 presents the distribution by part of country.

Table 1. Notified cases of invasive meningococcal disease in 2010. No. of cases and incidence per 10^5, by part of country

Part of country	No.	Incidence
Copenhagen City	6	0.9
Copenhagen subs	6	1.2
North Zealand	12	2.7
Bornholm	0	-
East Zealand	4	1.7
W & S Zealand	6	1.0
Funen	3	0.6
South Jutland	10	1.4
East Jutland	11	1.3
West Jutland	9	2.1
North Jutland	6	1.0
Total	73	1.3

Table 2. Notified cases with invasive meningococcal disease in 2010, by age-group, serogroup, M/F ratio, incidence per 10^5 and number of deaths

Age group (yrs)	B	C	X	Y	Other	Un-known	Total	M/F ratio	Incidence	Deaths
< 1	2	2	0	0	0	1	5	1,5	7,9	0
1-2	6	7	0	0	0	2	15	1,5	11,4	2
3-6	5	1	0	0	0	1	7	0,8	2,7	0
7-13	3	1	0	0	0	1	5	1,5	1,1	0
14-17	4	7	0	0	0	2	13	3,3	4,6	0
18-29	7	2	0	0	0	0	9	2,0	1,2	0
30-39	2	0	0	0	0	0	2	1,0	0,3	0
≥ 40	7	6	1	1	1	1	17	0,4	0,6	5
Total	36	26	1	1	1	8	73	1,2	1,3	7

Diagnosis

Among the 73 patients, 39 had meningitis, 22 septicaemia and 12 both meningitis and septicaemia.
A total of 36 (49%) cases were diagnosed with MD serogroup B, 26 (36%) with serogroup C and one (1%) with each of the serogroups X, Y and E29. In eight cases (11%), the serogroup was unknown.
No cases of serogroups A or W135 were notified. The distribution by age group is presented in Table 2.
In 59 (81%) of the notified cases, meningococci were detected by culture; four of these cases were also detected by PCR. In one case, both positive PCR and microscopy were performed; in another positive PCR and meningococcal antibody testing (MAT) was provided; and in another positive MAT and microscopy.
Four cases were only confirmed by PCR, one case only by microscopy and four cases only by MAT.
In two cases, the diagnosis was based exclusively on clinical observations.
A total of 69 cases were presumably infected in Denmark, one case abroad, and in three cases the country of infection was unknown.

Case clusters

Two small outbreaks of group B were observed in North Zealand: Two children attending the same kindergarden were diagnosed with MD and the whole institution was offered ciprofloxacin prophylaxis.
Later in the year, a pair of siblings was diagnosed, both attending the same after-school centre, but two different classes at the same school.
A symptom-free child from the same family attended the kindergarden where the other outbreak occurred earlier in the year.
In the latter cases, families and all pupils from the children's school classes and after-school centre were offered ciprofloxacin prophylaxis.
The meningococci from both outbreaks belonged to the same clone; one of the most frequently occurring in Denmark. Whether the two outbreaks were directly connected, is therefore difficult to establish.

Sequelae

Seven patients (10%) died from MD. Five of these had MD of serogroup B and two of serogroup C. All had septicaemia and five also had meningitis.
Among the 66 survivors, information on sequelae was available in 55 cases, including 49 (89%) cases with no sequelae. Following MD, six persons experienced impaired hearing, bilateral deafness, balance and coordination difficulty, possible reactive arthritis, neuritis, headache, and fatigue, respectively.

Notification

Physicians receiving patients for treatment must immediately notify the case when clinical suspicion arises; by phone to the Medical Office of Health in the region where the patient resides and in writing (Form 1515) to the Department of Epidemiology, SSI.

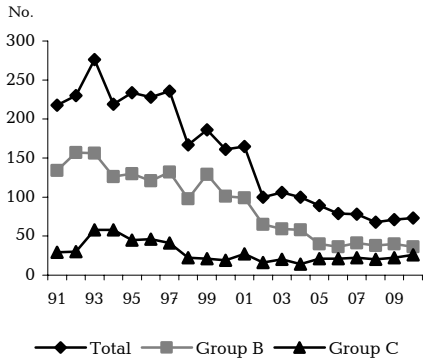
Prophylaxis to contacts

Household-like contacts to patients with suspected or verified MD are offered antibiotics prophylaxis, EPI-NEWS 17/10.
Vaccination may be offered following verification of MD caused by serogroups A, C, W135 or Y.

Commentary

The total number of MD cases in 2010 was in line with that of 2009.
The number of serogroup B cases decreased from 40 in 2009 to 36 in 2010, which is a continuation of the trend observed over the past many years, Figure 1.

Figure 1. Notified cases of meningococcal disease, 1990-2010



Serogroup C increased from 22 cases in 2009 to 26 in 2010.
This increase has continued into 2011, and by 1 September 2011, a total of 36 serogroup C cases had been detected, making serogroup C more frequent than serogroup B.
All meningococcal isolates undergo serotype and sub-serotype determination in addition to fine-typing.
In 2009 an increased occurrence of the C:2a:P1.2.5 type with fine-typing C:5.2:F3.3 was observed.
This type has caused an increased occurrence of serogroup C disease in several European countries and developments are therefore followed closely.

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