EPI-NEWS

NATIONAL SURVEILLANCE OF COMMUNICABLE DISEASES

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MRSA TRANSFERRED FROM SWINE

Animals are not generally regarded a substantial source of Staphylococcus aureus infection, including methicillin-resistant S. aureus (MRSA), EPI-NEWS 5/07. In 2006, however, it was established that animals, particularly swine, may constitute a reservoir of infection for some subtypes, mainly MRSA ST398. This subtype has been detected in swine and in humans with swine contact, especially in the Netherlands. Furthermore, MRSA ST398 has been found in humans and production animals in other European countries and in Canada and Asia. In Denmark, a total of 32 human cases of ST398 infection have been detected since 2003, including 4 cases in 2007.

Case-control study

To identify sources of MRSA ST398 infection, a case-control study was undertaken in the spring of 2007. MRSA ST398 cases were compared with two control groups (1:2:2): one group was selected via the Central National Register, the other included persons with community-acquired MRSA of subtypes other than ST398. The groups were matched with regards to age, sex and geographical distribution. Telephone interviews were used to collect information regarding admission to hospital, other medical contact, clinical data such as skin lesions and sores, chronic diseases, use of antibiotics, travel and exposure to agriculture and animals. In cases where several MRSA ST398 infected persons were found in the same family, only the index person was included in the study.

The study comprised 21 cases and 81 controls**.** The median age of the cases was 29 years, 13 were females. Ten (48 %) had skin or soft tissue infections; in one case such infection was complicated by severe joint infection. Consequently, ST398 seems to present a clinical presentation identical to that of other community-acquired MRSA infections.

Compared with the CNR controls, the cases were more likely to have lived or worked on farms with livestock (odds ratio (OR) 35.4; 95% CI 2.7-469.8) and have been admitted to hospital (OR 11.4; 95% CI 1.4-94.8). Compared with the MRSA control group, cases were more likely to have lived or worked on farms with livestock (OR 14.5; 95% CI 2.7-76.7). Thirteen (62%) cases and no controls had come into contact with swine. The owners of the farms which cases had been in contact with were contacted with a view to testing for MRSA in the current production animals. From the farms at which the owner agreed to participate, the nares of ten randomly selected animals were sampled. A total of 23 out of 50 swine from four out of five farms tested MRSA ST398 positive. The swine isolates were indistinguishable to those from the human cases. MRSA was not detected in two cattle herds examined. Samples from swine farms were taken months, and in some instances years, after MRSA ST398 had been detected in the cases. This indicates that swine remain colonised with MRSA ST398 for substantial periods of time and thus may constitute MRSA reservoirs.

Commentary

These results constitute epidemiological and microbiological evidence that humans living or working on livestock farms, particularly swine farms, are at increased risk of MRSA infection with ST398. The health care sector should therefore be aware that zoonotic MRSA occurs. MRSA introduced into the hospital setting by persons who come into contact with swine may spread further, as is the case with other staphylococci. The situation is currently being monitored closely and a revision of the guideline on Prevention of MRSA spreading, published in October 2006 (www.sst.dk/mrsa) by the National Board of Health, is being considered.

(H. Lewis, M. Selchau, K. Mølbak, Dept. of Epidemiology, R. Skov, AAS, C. Reese, Region South, F. M. Aarestrup, Danish Food Institute)

PNEUMOCOCCAL VACCINATION IN THE DANISH CHILDHOOD VACCINATION PROGRAMME

On 1 October 2007 vaccination against disease caused by a number of pneumococcal bacteria will be added to the Danish childhood vaccination programme.

The pneumococcal vaccine will be given as three doses when the child is 3, 5 and 12 months of age, i.e. concurrently with the DTaP-IPV/Hib vaccine. The two vaccines should be administered at separate injection sites.

During the introduction period, children who at 1 October 2007 are 4-17 months old will also be offered the vaccine:

- Children 4-11 months old (born: November 2007 – June 2007) will be offered three vaccinations
- Children 12-17 months old (born: May 2006 – October 2006) will be offered two vaccinations.

More detailed information will be published in a future EPI-NEWS.

(Department of Epidemiology)

BLOOD DONOR SCREENING 2006

In 2006, a total of 375,768 blood units were screened and 29,377 donor candidates were examined. The number of positive donors is presented in Table 1.

Table 1. Number of donors who tested positive for HIV, HBsAg, HCV or HTLV I/II, 2006. First-time donors in ( )

No. of donors		
HIV positive	3	(0)
HBsAg positive	6	(5)
HCV positive	6	(4)
HTLV I/II positive	0	(0)

Three multiple donors were HIV positive: two females and one male, aged 21 to 43 years. On subsequent retrospective investigation, no recipients were found to have been infected with HIV.

A total of six persons tested positive for HBsAg: four females and two males. The median age was 31 years (range: 20-58). Five persons were first-time donors, all born in countries with endemic hepatitis B. The sixth person was probably infected via sexual contact.

A total of six persons tested positive for anti-HCV: three females and three males. The median age was 46 years (range: 31-53). Four were first-time donors, one of which had donated blood before HCV screening was introduced in 1991. One was a multiple donor whose last unit of blood had not been used. Possible mode of transmission was stated for five donors: one had engaged in sexual contact with an intravenous drug abuser and four had piercings or tattoos.

Furthermore, all candidates for first-time donation and former donors returning to the donor pool are screened for HTLV I/II. Screening for HTLV-I/II did not reveal any positive donors.

(A.H. Christiansen, S. Cowan, Department of Epidemiology)

15 August 2007

Individually notifiable diseases

Number of notifications received in the Department of Epidemiology, SSI (2007 figures are preliminary)

Table 1	Week 32 2007	Cum. 2007 [1]	Cum. 2006 [1]
AIDS	0	36	28
Anthrax	0	0	0
Botulism	0	0	0
Cholera	0	0	0
Creutzfeldt-Jakob	0	6	13
Diphtheria	0	0	0
Food-borne diseases	21	342	306
of these, infected abroad	0	48	75
Gonorrhoea	4	233	270
Haemorrhagic fever	0	0	0
Hepatitis A	1	18	14
of these, infected abroad	0	6	4
Hepatitis B (acute)	0	15	13
Hepatitis B (chronic)	2	171	225
Hepatitis C (acute)	0	3	6
Hepatitis C (chronic)	11	224	352
HIV	2	181	131
Legionella pneumonia	7	65	66
of these, infected abroad	0	11	19
Leprosy	0	0	0
Leptospirosis	0	7	6
Measles	0	1	26
Meningococcal disease	0	45	55
of these, group B	0	24	28
of these, group C	0	15	9
of these, unspec. + other	0	6	18
Mumps	0	3	10
Neuroborreliosis	3	48	25
Ornithosis	1	6	8
Pertussis (children < 2 years)	1	44	34
Plague	0	0	0
Polio	0	0	0
Purulent meningitis			
Haemophilus influenzae	0	1	1
Listeria monocytogenes	0	7	6
Streptococcus pneumoniae	0	75	63
Other aethiology	0	9	4
Unknown aethiology	0	9	16
Under registration	3	17	-
Rabies	0	0	0
Rubella (congenital)	0	0	0
Rubella (during pregnancy)	0	0	0
Shigellosis	2	34	33
of these, infected abroad	0	19	28
Syphilis	4	62	45
Tetanus	0	0	2
Tuberculosis	13	256	238
Typhoid/paratyphoid fever	0	8	16
of these, infected abroad	0	7	16
Typhus exanthematicus	0	2	0
VTEC/HUS	3	93	79
of these, infected abroad	0	26	26

[1] *Cumulative number 2007 and in corresponding period 2006*

Selected laboratory diagnosed infections

Number of specimens, isolates, and/or notifications received in SSI laboratories

Table 2	Week 32 2007	Cum. 2007 [2]	Cum. 2006 [2]
Bordetella pertussis			
(all ages)	4	109	132
Gonococci	9	236	271
of these, females	4	36	49
of these, males	5	200	222
Listeria monocytogenes	1	32	26
Mycoplasma pneumoniae			
Resp. specimens [3]	2	253	269
Serum specimens [4]	5	299	234
Streptococci [5]			
Group A streptococci	0	76	96
Group B streptococci	0	53	58
Group C streptococci	0	11	15
Group G streptococci	0	70	85
S. pneumoniae	0	694	688
Table 3	**Week 30 2007**	**Cum. 2007 [2]**	**Cum. 2006 [2]**
MRSA	14	344	-
Pathogenic int. bacteria [6]			
Campylobacter	104	1945	1430
S. Enteritidis	17	248	243
S. Typhimurium	11	172	196
Other zoon. salmonella	15	397	334
Yersinia enterocolitica	4	159	106
Verocytotoxin-producing E. coli	3	98	70
Enteropathogenic E. coli	4	97	124
Enterotoxigenic E. coli	5	124	124

[2] *Cumulative number 2007 and in corresponding period 2006*

[3] *Resp. specimens with positive PCR*

[4] *Serum specimens with pos. complement fixation test*

[5] *Isolated in blood or spinal fluid*

[6] *See also www.germ.dk*

Commentary, Table 3

Methicillin resistant Staphylococcus aureus (MRSA) became notifiable in November 2006. As a new addition, EPI-NEWS now details the number of the new notifiable isolates received by the Staphylococcus laboratory, Statens Serum Institut. In conformity with the remaining pathogenic bacteria listed in Table 3, the number stated is that of the most recent complete week available and the cumulated number of isolates received in 2007. (Department of Epidemiology)