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Outbreak Investigation

Severe Echovirus 11 Infection in Newborns, Taiwan, 2018

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Abstract

Beginning May 2018, Taiwan Centers for Disease Control was notified of an increase in reports related to severe enterovirus (EV) infection in newborns. Through July 31, severe echovirus 11 infections were confirmed in eight neonatal patients (5 males, age 0–12 days). Clinical presentations included hepatitis with coagulopathy (n = 8), sepsis syndrome (n = 8), myocarditis (n = 2), and multiorgan dysfunction (n = 7); 7 (87.5%) died. Neonatal echovirus 11 infections may be acquired transplacentally, during delivery, or from postnatal transmission, and are associated with severe complications. Clinicians should consider and report severe EV infection in neonates having myocarditis, hepatitis, encephalitis, thrombocytopenia, sepsis syndrome, or multiorgan dysfunction, but with sterile bacterial cultures. In EV epidemic seasons, we recommend appropriate hand and respiratory hygiene of pregnant women; obstetric notification of fever and other illness from 14 days before delivery; keeping sick people away from a newborn; and infection controls in healthcare/postpartum care facilities.

Keywords: echovirus 11, severe enterovirus infection, neonate, hepatitis, coagulopathy

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Enterovirus Echo 11 Infections in Neonates, Taiwan, 2018

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Abstract

Taiwan Centers for Disease Control detected that enteric cytopathic human orphan virus 11, Echo 11 was prevalent in the community through contract laboratory surveillance in May, 2018. Neonatal cases of Echo 11 infections with severe complications and Echo 11 clusters in neonatal care units of hospitals or nursing homes were also confirmed successively. As of September 14, 2018, a total of 181 Echo 11 cases were detected, showing a significant increase compared with the numbers in 2016 and 2017. Among these 181 cases, 35 were neonates (19.3%); 8 of which were with severe complications. The proportion of neonatal Echo 11 infection with severe complications (22.9%) was higher than other age groups, and the number of cases with severe complications and deaths was also higher than those in previous years, indicating that neonatal Echo 11 infection was associated with a higher risk of severe complications. Echovirus used to cause severe complications or death in newborns. Because the virus can be transmitted through the placenta, birth canal or asymptotic care unit personnel, it is hard to prevent. We recommended strengthening the neonatal and maternal enterovirus infection prevention and protection measures to reduce cases with severe complications and deaths, and strengthening implementation of infection control measures in maternal and neonatal care units to avoid clusters.

Keywords: neonates, enterovirus, enteric cytopathic human orphan virus 11, cluster

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week 42–43(Oct. 14–Oct. 27, 2018)

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Weekly Data of Notifiable Infectious Diseases（by week of diagnosis）

Case diagnosis year		Week 42★		Week 1–42			
				2018		2017	
Classification	Disease Diagnosed	2018	2017	Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	0	0	57	0	26	0
	Acute Viral Hepatitis type A	2	2	72	27	343	43
	Amoebiasis	5	5	259	109	290	160
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	6	6	11	11
	Cholera	0	0	7	0	1	0
	Dengue Fever	8	11	393	239	281	271
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	1	0	1	0
	Malaria	0	0	5	5	7	7
	Measles	0	0	36	9	5	5
	Meningococcal Meningitis	0	0	5	1	11	0
	Paratyphoid Fever	0	0	7	6	5	4
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	9	8	3	2
	Shigellosis	5	1	138	44	132	47
	Typhoid fever	0	1	13	10	17	14
	West Nile Fever	0	0	0	0	0	0
Category III	Acute Viral Hepatitis type B	2	3	120	8	125	7
	Acute Viral Hepatitis type C	7	9	368	3	244	1
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	0	6	0	13	3
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	1	1
	Enteroviruses Infection with Severe Complications	0	0	34	0	9	0
	Haemophilus Influenza type b Infection	0	0	5	0	5	0
	Japanese Encephalitis	1	1	36	0	25	0
	Legionellosis	3	1	163	6	125	12
	Mumps	14	14	496	7	537	8
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	1	2	27	2	31	0
	Tetanus	0	1	5	0	9	0
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	1	2	47	0	24	1
	Endemic Typhus Fever	0	0	22	1	33	1
	Herpesvirus B Infection	0	0	0	0	0	0
	Invasive Pneumococcal Disease	10	5	386	0	371	3
	Leptospirosis	2	0	77	0	76	1
	Listeriosis	6	…	139	1	…	…
	Lyme Disease	0	0	2	2	1	1
	Melioidosis	1	0	23	1	21	0
	Q Fever	1	2	15	1	16	0
	Scrub Typhus	11	14	293	1	364	0
	Severe Complicated Influenza	19	4	1054	5	1264	7
	Toxoplasmosis	2	0	14	1	16	0
	Tularemia	0	0	0	0	0	0
Catego ry V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	1	1
	Rift Valley Fever	0	0	0	0	0	0
	Yellow Fever	0	0	0	0	0	0
	Zika virus infection	0	0	2	2	4	4

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. The following chronic diseases are excluded from the table: MDR-TB, Tuberculosis, Syphilis, Gonorrhea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease.
3. Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
4. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
5. Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease.

Suspected Clusters

●Twenty-nine clusters were reported, including 13 tuberculosis clusters, 6 diarrhea clusters, 3 upper respiratory tract infection clusters, 2 influenza-like illness clusters, and 5 varicella clusters.

Imported Infectious Diseases

●There were 15 confirmed imported cases from 8 countries during week 42 of 2018.

Country / Disease	Indonesia	Cambodia	Myanmar	Philippines	Vietnam	China	Sri Lanka	India	Total
DF		3	1	1	1	1	1		8
Amoebiasis	2			1					3
Shigellosis	1							1	2
Endemic Typhus Fever			1						1
Paratyphoid Fever	1								1
Total	4	3	2	2	1	1	1	1	15

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

●There are 498 confirmed imported cases from 29 different countries in 2018. The top 3 countries are Indonesia (149), Philippines (67), and Cambodia (52).

●Top 3 imported diseases are Dengue Fever (239), Amoebiasis (109), and Shigellosis (44).

Summary of Epidemic

●**Enterovirus:** The epidemic has slowed down gradually.

●**Dengue Fever:** The indigenous epidemic and risk have been slowed down in Taiwan; however, sporadic cases are expected to occur. The dengue epidemics are still at its peak or in the midst in some of the nearby Asian countries, the potential risks of imported cases remain in Taiwan.

●**Influenza:** Influenza activity is expected to fluctuate due to large temperature differences between night and day during the fall season.

Weekly Data of Notifiable Infectious Diseases（by week of diagnosis）

Case diagnosis year		Week 43★		Week 1–43			
				2018		2017	
Classification	Disease Diagnosed	2018	2017	Total cases★	Imported cases	Total cases★	Imported cases
Category I	Plague	0	0	0	0	0	0
	Rabies	0	0	0	0	0	0
	SARS	0	0	0	0	0	0
	Smallpox	0	0	0	0	0	0
Category II	Acute Flaccid Paralysis	2	2	59	0	28	0
	Acute Viral Hepatitis type A	2	3	74	27	346	46
	Amoebiasis	8	5	267	114	295	164
	Anthrax	0	0	0	0	0	0
	Chikungunya Fever	0	0	6	6	11	11
	Cholera	0	0	7	0	1	0
	Dengue Fever	27	10	419	250	291	281
	Diphtheria	0	0	0	0	0	0
	Enterohemorrhagic E. coli Infection	0	0	0	0	0	0
	Epidemic Typhus Fever	0	0	0	0	0	0
	Hantavirus Pulmonary Syndrome	0	0	0	0	0	0
	Hemorrhagic Fever with Renal Syndrome	0	0	1	0	1	0
	Malaria	0	0	5	5	7	7
	Measles	0	0	36	9	5	5
	Meningococcal Meningitis	0	0	5	1	11	0
	Paratyphoid Fever	0	0	7	6	5	4
	Poliomyelitis	0	0	0	0	0	0
	Rubella	0	0	9	8	3	2
	Shigellosis	3	6	141	47	138	49
	Typhoid fever	0	0	13	10	17	14
	West Nile Fever	0	0	0	0	0	0
Category III	Acute Viral Hepatitis type B	1	4	121	8	129	7
	Acute Viral Hepatitis type C	8	12	376	3	256	2
	Acute Viral Hepatitis type D	0	0	0	0	1	0
	Acute Viral Hepatitis type E	0	1	6	0	14	3
	Congenital Syphilis	0	0	0	0	0	0
	Congenital Rubella Syndrome	0	0	0	0	1	1
	Enteroviruses Infection with Severe Complications	2	1	36	0	10	0
	Haemophilus Influenza type b Infection	0	0	5	0	5	0
	Japanese Encephalitis	0	0	36	0	25	0
	Legionellosis	3	11	166	6	136	12
	Mumps	10	10	506	7	547	8
	Neonatal Tetanus	0	0	0	0	0	0
	Pertussis	0	0	27	2	31	0
	Tetanus	0	0	5	0	9	0
Category IV	Botulism	0	0	0	0	0	0
	Brucellosis	0	0	0	0	0	0
	Complicated Varicella	3	0	50	0	24	1
	Endemic Typhus Fever	0	0	22	1	33	1
	Herpesvirus B Infection	0	0	0	0	0	0
	Invasive Pneumococcal Disease	5	9	391	0	380	3
	Leptospirosis	3	1	80	0	77	1
	Listeriosis	0	…	139	1	…	…
	Lyme Disease	0	0	2	2	1	1
	Melioidosis	0	1	23	1	22	0
	Q Fever	0	0	15	1	16	0
	Scrub Typhus	6	8	299	1	372	0
	Severe Complicated Influenza	7	7	1061	5	1271	7
	Toxoplasmosis	0	1	14	1	17	0
	Tularemia	0	0	0	0	0	0
Category V	Ebola Virus Disease	0	0	0	0	0	0
	Lassa Fever	0	0	0	0	0	0
	Marburg Hemorrhagic Fever	0	0	0	0	0	0
	Middle East Respiratory Syndrome Coronavirus	0	0	0	0	0	0
	Novel Influenza A Virus Infections	0	0	0	0	1	1
	Rift Valley Fever	0	0	0	0	0	0
	Yellow Fever	0	0	0	0	0	0
	Zika virus infection	0	0	2	2	4	4

1. ★The weekly and cumulative total numbers include indigenous and imported cases of notifiable infectious diseases.
2. MDR-TB, Tuberculosis, Syphilis, Gonorrhea, HIV Infection, AIDS, Hansen Disease and Creutzfeldt-Jakob Disease are excluded from the table.
3. Numbers of mumps, neonatal tetanus and tetanus cases are summed up by the week of report.
4. Since 2016/1/22, "Zika Virus Infection" was listed as a Notifiable Infectious Disease.
5. Since 2018/1/1, "Listeriosis" was listed as a Notifiable Infectious Disease. Symbols "…" means not under surveillance.

Suspected Clusters

●Thirty-one clusters were reported, including 10 tuberculosis clusters, 7 diarrhea clusters, 5 upper respiratory tract infection clusters, 3 influenza-like illness clusters, and 6 varicella clusters.

Imported Infectious Diseases

●There were 21 confirmed imported cases from 6 countries during week 43 of 2018.

Country / Disease	Indonesia	Vietnam	Singapore	Philippines	Cambodia	Malaysia	Total
DF	1	5	2	2	2	1	13
Amoebiasis	5						5
Shigellosis	3						3
Total	9	5	2	2	2	1	21

Note: The table summarized the number of imported cases that were either **confirmed** or **updated** in the given week.

●There are 517 confirmed imported cases from 29 different countries in 2018. The top 3 countries are Indonesia (158), Philippines (69), and Cambodia (54).

●Top 3 imported diseases are Dengue Fever (250), Amoebiasis (114), and Shigellosis (47).

Summary of Epidemic

●**Dengue Fever:** The risk of indigenous dengue epidemics continues in Taichung, but slows down in other counties in Taiwan. The dengue epidemics are still at its peak or in the midst in some of the nearby Asian countries, the potential risks of imported cases remain in Taiwan.

●**Influenza:** Influenza activity is expected to fluctuate due to large temperature differences between night and day during the fall season.

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