FACT SHEET ON ENTEROVIRUS INFECTION (INCLUDING ENTEROVIRUS 71) FOR GENERAL MEDICAL PRACTITIONERS

VIROLOGY

Enteroviruses belong to the family Picornaviridae. Enteroviruses are classified into 5 subgroups: Polioviruses, Coxsackieviruses group A and group B, Echoviruses, and Enterovirus serotypes 68 – 71.

EPIDEMIOLOGY

In Hong Kong, enterovirus infections are more common in summer months, as shown by data captured by sentinel surveillance and outbreak reports on hand-foot-mouth disease. (http://www.info.gov.hk/dh/diseases/index.htm). The Virology Division, Public Health Laboratory Services Branch of the Center for Health Protection conducts enterovirus surveillance on specimens collected from hospitals and outbreak investigations. Coxsackie A viruses are the commonest enteroviruses found.

Enterovirus isolates 1994 -- 2004 (Jan-Mar)

Year	Number of isolates			
	Coxsackie	EV71	Other Enterovirus	Total
1994	111	0	22	133
1995	36	1	34	71
1996	49	0	21	70
1997	30	2	32	64
1998	170	60	332	562
1999	214	22	111	347
2000	269	6	83	358
2001	230	30	24	284
2002	459	5	13	477
2003	43	1	6	50
2004 (Jan – Mar)	8	1	2	11

CLINICAL MANIFESTATIONS

Most enterovirus infections are asymptomatic or present with nonspecific febrile illnesses. Hand-foot-mouth disease (HFMD) is a common self-limiting disease in young children aged 6 or below. The illness lasts for 5-10 days characterized by fever, malaise, sores in the mouth and a rash that develop over 1-2 days over palms and soles. Mouth sores are usually found on the tongue, gums, and inside of the cheeks. The skin rash is non-itchy, and has flat or raised red spots, sometimes with blisters. Some patients may only have rash or mouth ulcers. The commonest cause of HFMD in Hong Kong is Coxsackievirus A16.

Warning signs indicating more severe illness requiring hospitalization include irritability, insomnia, panic attack, abdominal distension, repeated vomiting, photophobia, sleepiness, myoclonic jerks, hallucinations, shortness of breath, cold sweating, poor peripheral circulation, tachycardia (>160/min), limb weakness, unsteady gait, conjugated ocular disturbance, and cranial nerve paresis.[†]

[†] Reference: Fact sheet on Enteroviral Infection, Hospital Authority (Updated May 2004)

Complications of enterovirus infection are rare but can include aseptic meningitis, encephalitis, myocarditis, pericarditis, and neurologic paralysis. Herpangina and acute hemorrhagic conjunctivitis may also occur.

EV71 has been reported to be associated with outbreaks with fatal outcomes: Bulgaria (1975), Hungary (1978), Malaysia (1997), and Taiwan (1998). Two fatal cases have been reported in Hong Kong. The first one occurred in a 2-year-old boy in association with a nursery HFMD outbreak in 1999. The second one occurred in a 5-year-old girl who died two days after fever onset in 2000.

MODE OF TRANSMISSION

HFMD is mainly transmitted by the fecal-oral route. Infection is spread from person to person by direct contact with nose and throat discharges, saliva, fluid from blisters, or the stool of infected persons (particularly infants in diapers). The incubation period ranges from 2 days to 2 weeks, but it is usually 3-7 days. A person is most contagious during the first week of the illness, although the virus may be present a few days before illness onset and for some weeks in stools after recovery.

LABORATORY INVESTIGATION

Enterovirus infection is mainly diagnosed by viral culture. Clinical specimens may include respiratory secretions, stool, cerebrospinal fluid and vesicular fluid. Polymerase Chain Reaction (PCR) may also be applied for detection of enteroviral RNA. The following groups of hospitalized patients are advised to have samples taken for viral studies: HFMD/Enterovirus infection with rapid clinical deterioration or complications; children with fever and rapid clinical deterioration; aseptic meningitis / encephalitis; acute flaccid paralysis; myocarditis.

TREATMENT

There is presently no effective antiviral therapy for enterovirus infections. Supportive care is the mainstay of treatment.

PREVENTION

The risk of infection can be reduced by good hygienic practices. Preventive measures include frequent handwashing, especially after diaper changes, cleaning of contaminated surfaces and items by diluted solution of chlorine-containing bleach, and washing soiled articles of clothing. Standard precautions and contact precautions should be observed by health care workers.

For update information, please go to the Department of Health website:
http://www.info.gov.hk/dh/diseases/hfmlink.htm and
http://www.info.gov.hk/dh/diseases/enterovirus.htm

Centre for Health Protection
Department of Health
June 2004