PathCare has recently experienced an unusual increase in the number of positive coxsackie group B serologies performed. Clinicians should be aware of the epidemiology and clinical presentation of these infections.

Coxsackie virus belongs to the group of enteroviruses. Enteroviruses are single stranded RNA viruses belonging to the family picornaviridae and include polioviruses, coxsackie A and B, echoviruses and new enteroviruses type 68-71.

The non-polio enteroviruses are associated with a wide range of clinical disease presentations including aseptic meningitis, encephalitis, herpangina, hand foot and mouth disease, respiratory infections, pleurodynia, myopericarditis, maculopapular rash, conjunctivitis and neonatal infection that may present with a sepsis-like syndrome. Often, infection is asymptomatic or present only as an undifferentiated febrile illness. Some clinical syndromes are caused by several enterovirus serotypes, other are more specific of certain serotypes e.g. pleurodynia and myocarditis caused by coxsackie group B.

Enteroviruses are the most common cause of viral meningitis and affects patients of all ages. The majority are due to coxsackie group B viruses. Patients recover within a few days of onset, but symptoms may persist longer in adults. Enteroviruses account for about 5% of acute encephalitis cases as well, usually due to enteroviruses circulating in the community at the time and not just restricted to coxsackie group B.

Enteroviruses are transmitted enterically and via respiratory droplets in acute infection. Infections often occur in household contacts. Virus shedding in the stool continues for 3 weeks after infection. Infections occur throughout the year with higher rates in summer.

Laboratory diagnosis

Coxsackie B virus serology
Antibody tests are only available for coxsackie group B and therefore do not exclude infection with other enterovirus types. Antibodies are usually present at the onset of symptoms. Titres rise during the first 6-12 weeks and remain high for 3-6 months after which it declines and remain present at low levels. A fourfold increase in titre in acute and convalescent serum, or a single high titre of >1:320 confirms an acute or recent infection. A low titre may represent a previous infection. Cross reactivity between serotypes can occur.

Enterovirus RT-PCR
Suitable specimens include CSF, nasopharyngeal swab, stool, lesion aspirate or swab.

PCR detect enterovirus RNA in the CSF of patients with aseptic enterovirus meningitis with a high sensitivity (97%) and specificity (100%). Isolation of a non-polio enterovirus from the throat or rectum of a patient with aseptic meningitis is suggestive in a patient with positive serology, but virus shedding also occurs in healthy individuals and may represent asymptomatic or past infection.

CSF findings in patients with enterovirus meningitis include a white cell count of 100-1000 cells/μL. Often neutrophils predominate in the early infection and are replaced with lymphocytes over the first 6-48 hours. Protein may be mildly elevated and glucose mildly decreased.

References:

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