Gastrointestinal Viral Panel

Indications for Ordering

- Aids in the diagnosis of gastrointestinal (GI) infections caused by viral pathogens
  - Adenovirus (serotypes 40 and 41)
  - Astrovirus
  - Norovirus (genogroups 1 and 2)
  - Rotavirus
  - Sapovirus
- Use as a sensitive alternative to traditional antigen testing

Test Description

Qualitative multiplex real-time polymerase chain reaction

Tests to Consider

Typical testing strategy

Norovirus Group 1 and 2 by PCR
- Sensitive and specific test for diagnosing norovirus-associated gastroenteritis

Primary test

Gastrointestinal Viral Panel by PCR 2013577
- Detects
  - Adenovirus 40-41
  - Astrovirus
  - Norovirus groups 1 and 2
  - Rotavirus
  - Sapovirus

Related tests

- Norovirus Group 1 and 2 by PCR 0051281
- Rotavirus Antigen by EIA 0065088
- Rotavirus and Adenovirus 40-41 Antigens 0065067

Disease Overview

Incidence

Norovirus is leading cause of sporadic cases and outbreaks of diarrheal illness in U.S.
- ~21 million episodes annually in U.S.
  - 5.5 million cases are foodborne

Symptoms

Diarrhea, vomiting, nausea, stomach pain

Diagnostic issues

Rapid identification of infectious agent helps control outbreaks in institutional settings

Treatment issues

Proper rehydration and hygiene precautions help avoid secondary transmission

Test Interpretation

Sensitivity/specificity

- Analytical sensitivity
  - Adenovirus (types 40/41) – 1,875 copies/rxn
  - Astrovirus – 6,300 copies/rxn
  - Rotavirus – 3,275 copies/rxn
  - Sapovirus – 24,375 copies/rxn
- Analytical specificity
  - No cross-reactivity was observed for 61 organisms tested

Results

- Detected
  - Detection of a viral pathogen in the stool is considered diagnostic for infection with that virus
- Not detected
  - Stool specimen that does not contain viral particles identified by this assay will be reported as “not detected”
    - Each target organism is listed to aid in interpreting which organisms were tested
- Inhibited
  - Stool specimens contain many inhibitors of molecular tests
  - Some specimens will inhibit the reaction, leading to an overall result of “inhibited”
- Inconclusive
  - Specimen cannot be accurately determined to contain viral nucleic acid

Limitations

- Patients can continue to shed GI viruses in their stools for up to 10 days after clinical recovery
- Detection of norovirus by PCR must be correlated with clinical symptoms
- Norovirus group 1 and 2 testing
  - A negative result does not rule out the presence of PCR inhibitors in the patient specimen or test-specific nucleic acid in concentrations below the level of detection