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KORPATH

Gastro-ID Case Review

- **Patient History:**
  78-year-old female who has no recent Hx of Abx use or change in diet.

- **Disease State:**
  Presented to the office with a chief complaint of diarrhea X 3 weeks

- **Why This Test was Ordered:**
  Clinic office had just been implemented with Vikor so provider chose to perform Gastro-ID

- **Outcome:**
  PCR test identified EPEC 10^7, C. diff 10^6, and Staph 10^2 and positive Resistance Genes for macrolides, tetracyclines, and AmpC beta lactamase. Provider decided to treat initially with Vanco for 10 days and then to re-evaluated and will likely treat EPEC if diarrhea persists after 10 days of Vanco. We discussed the EPEC and C diff at length because both cause diarrhea. The provider questioned why the PharmD guidance did not recommend EPEC Abx treatment concurrent with Vanco. We discussed treating the most relevant infection first which is the C. diff. and that the IDSA guideline suggests hydration as the primary regimen for EPEC, per the PharmD notes. That perhaps if diarrhea persists post Vanco treatment that a consultation call with the PharmD team would be helpful. The provider was very happy to know that he could consult with the PharmD team at any time and found the PharmD notes extremely thorough and helpful as well as our discussion based off their notes.

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Gastro-ID™
Molecular Pathogen Report

CAP ACCREDITED #8359749

Clinical Laboratory Improvement Amendments #42D2150400

Patient Name	Date of Birth	Gender	Race

Facility Information

Ordering Provider:

Facility:

Facility Phone:

Facility Fax:

Specimen Information

ACC:

Collection Date: 06-29-2021

Report Date: 07-04-2021

Received Date: 07-03-2021

Sample Type: Rectal/Stool Swab

Notes:

Laboratory Results

PATHOGENS DETECTED

Escherichia EPEC	1 x 10^7 copies/uL	90.908%
C. Dificille Toxin A & B	1 x 10^6 copies/uL	9.091%
Staphylococcus aureus	1 x 10^2 copies/uL	0.001%

RESISTANCE GENES DETECTED & POTENTIAL MED CLASS AFFECTED

ermB, ermA	Macrolides
tetM	Tetracycline
ampC, ACC, DHA, ACT/MIR	AmpC beta lactamase

ABXAssist™

Pharmacy Guidance Provided by: Advance Therapeutic Assist

Electronically approved on 07-04-2021 by: Robin Ritter
•Email: pharmconsult@vikorscientific.com • Phone: 1-855-742-7635, 1-855-PharmD5

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MEDICATION REVIEW

Drug Allergies:	BACTRIM, DEMEROL, DILAUDID, ERYTHROMYCIN, OXYCODONE
Notes from Ordering Physician:	STOOL
Notes from Pharmacist:	The treatment guidance listed is based on infectious disease treatment references, the organisms detected, and genes known to contribute to medication resistance. Important clinical information such as comorbidities, renal function, etc. may influence the overall appropriateness of therapy. The provided guidance only takes drug allergies into account when they are provided. The provider should take the entire clinical presentation into account when making treatment decisions. Not all detected microbes will require antimicrobial therapy as some are part of the normal flora or can be non-pathogenic colonizers. Primary regimen for EPEC is hydration. If antibiotic was started empirically, evidence supports discontinuing it. Supportive therapy without antibiotic therapy is recommended for infection involving EPEC, but antibiotics may be indicated in certain cases. In cases of persistant diarrhea (greater than 2 weeks) antibiotics may be used. Recommended options are ciprofloxacin or neomycin All three of these drugs are considered treatment of CDI, Vancomycin, Fidaxomicin(Allergy to class), and Metronidazole. It depends on the severity, cost to patient, risk factors, resistance, and age to which would be the better drug. IDSA guidelines have Vancomycin as first line agent in adults. In more severe infections, metronidazole is not recommended as first line. C diff is commonly caused by Clindamycin, Quinolones, Penicillins, and Cephalosporins. If possible, discontinue or switch C difficile inciting antibiotic as soon as feasible. Vancomycin Pulse tapered regimen for recurring CDI: 125mg qid x 10 d 125mg tid x 7 d 125mg bid x 7d 125mg qd x 7d 125mg qod x 7 d 125mg q 72 hr x 7 days, stop

	Medication	Route	Dose
FIRST LINE	vancomycin	oral	125mg po qid x10 days (14 days if improving but not resolved) See pulse taper for recurrent CDI□

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SECOND LINE	metronidazole	oral	500mg tid x10 days; avoid use in more severe disease; increased mortality □compared to vancomycin□

Considerations: Avoid alcohol use during and 24hrs after treatment,
Caution if hepatic impairment,
May cause metallic-like taste

Methodology

The infectious disease and antibiotic resistance detection panels are tested utilizing Real-time PCR technology to detect the presence of genes associated with pathogens and antibiotic resistance via amplification of genomic DNA. Amplification and detection are performed using the Applied Biosystems™ QuantStudio™ 12K Flex Real-time PCR system, which includes the QuantStudio™ 12k Software v1.3 and Thermo Fisher Scientific TaqMan™ assays. The assays are preloaded onto TaqMan™ OpenArray plates.

Limitations

This test only detects microorganisms and antibiotic resistance (ABR) genes specified in the panel. ABR genes are detected in the specimen and are not specific to a detected pathogen. ABR genes may be detected in bacterial strains not tested for in the panel.

The resistance genes for Ampicillin, selected Extended-Spectrum-Betalactamases, Vancomycin, Carbapenems, Sulfonamide, Trimethoprim, Aminoglycosides and the Quinolone gyrase groupings are assays customized by pooling the individual genes listed in the associated group. If listed as positive, this indicates that at least one of the genes in the group was detected and the class of medication could have potential resistance.

Disclaimer

This test was developed and its performance characteristics determined by Vikor Scientific™. It has not been cleared or approved by the FDA. The laboratory is regulated under CLIA as qualified to perform high complexity testing. This test is used for clinical purposes. It should not be regarded as investigational or for research. Pharmacy guidance and recommendations therein are not under the purview of the laboratory or agencies which accredit the laboratory.

The treatment guidance listed in the report is based on infectious disease treatment references, the organisms detected, and genes known to contribute to medication resistance. Important clinical information such as comorbidities, renal function, patient weight, platelet count, microbiology results, etc. may influence the overall appropriateness of therapy. The provided guidance only takes drug allergies into account when they are provided and available to the pharmacist making the recommendation. The overall appropriateness of therapy must be determined by the physician treating the patient. The provider has all the patient information necessary to make that determination and should take the entire clinical presentation into account when making treatment decisions. Should the treating physician wish to discuss the provided guidance, the pharmacist is available for consult at the email and phone number provided.

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NEGATIVE PATHOGENS
Astrovirus
Campylobacter jejuni
Cryptosporidium
Entamoeba histolytica
Escherichia EAEC
Escherichia EIEC/Shigella
Escherichia ETEC
Giardia lamblia
H. pylori
Intestinal adenovirus
Norovirus GI/GII
Plesiomonas shigelloides
Rotavirus A
Rotavirus B
Rotavirus C
Salmonella
Sapovirus
Shigella
Vibrio cholerae
Yersinia enterocolitica

NEGATIVE RESISTANCE GENES	ANTIBIOTIC CLASS
aac6-1b/aacA4, ant(3), aph(A6), aac6-1b-cr	Aminoglycosides
SULL, DFRA	Bactrim
PER-1, PER-2, VEB, blaNDM-1, OXA-1, GES, BlaSHV	Beta-lactams
OXA-23, OXA-40, OXA-58, OXA-72, IMP-16, NDM, blaOXA-48, OXA-48, KPC, VIM, IMP-7	Carbapenems
TEM, TEM E102K, TEM R162S, TEM G238S	Class A Beta-lactams
CTX-M	ClassA Beta-lactamases
ermC	Macrolides
mecA	Methicillin
mcr-1	Polymyxins
QnrB, Gyrase A D87N_GTT, Gyrase A S83L_TGG, QnrA	Quinolones
VanB, VanA1, VanA2	Vancomycin