Bacteriodes - Parabacteroides spp (LTR57855)

Edit Approved By: Dragan, Tatiana (09/15/2021) **Revision: 2.00**

Organism

Bacteroides fragilis group

- *Bacteroides spp*
- *Parabacteroides spp*

Clinical

These organisms are normally commensals in the gut flora and are the most commonly encountered anaerobes in clinical specimens. They are often isolated in polymicrobial anaerobic infections and are more virulent than most other anaerobes.
B. fragilis group is associated with intra-abdominal infections, bacteremia, pelvic abscesses, skin/soft tissue infections, endocarditis, pericarditis, septic arthritis, brain abscesses, meningitis and osteomyelitis.

Usual susceptibility pattern

B. fragilis group is more resistant to antimicrobial agents than most other anaerobes. They are usually susceptible to metronidazole, piperacillin/tazobactam and carbapenems. Clindamycin resistance is significant. Although rare, metronidazole resistance has been reported.
It is not necessary to perform β-lactamase testing of these organisms as they characteristically produce β-lactamases and should be considered penicillin resistant. Most of these organisms are susceptible to β -lactamase inhibitor combination drugs but resistance to these agents is increasing.
Bacteroides fragilis group may possess an inducible chromosomal carbapenemase (metalloenzyme) that is not usually expressed. In these isolates, antibiotic pressure may result in induction and hyperproduction of the carbapenemase. Constitutive expression of this carbapenemase may also occur by acquisition of a promoter.

Bacteroides – Parabacteroides ssp., Continued

Susceptibility method

Etest method using Laked Blood Agar incubated anaerobically at 35°C for 48-72 hours, depending on growth characteristics. (Clindamycin - read at 48 hours).

Note: Use 1.0 McFarland suspension in pre-reduced, enriched thioglycollate broth.

Susceptibility reporting

	CSF/ Brain	Blood	Sterile Body Site/ Deep Wound	Comments
Amoxicillin/ clavulanate (oral)			✓	Report as R if meropenem I/R If pip/tazo I/R and amox/clav S **see Special Considerations**
Clindamycin			✓	
Meropenem	✓	✓	✓	If meropenem I/R **see Special Considerations**
Metronidazole	✓	✓	✓	If metronidazole I/R **see Special Considerations**
Penicillin	R	R	R	
Piperacillin/ tazobactam		✓	✓	Report as R if meropenem I/R If pip/tazo I/R and amox/clav S **see Special Considerations**

Note:

Consult microbiologist regarding the need for susceptibility testing. Susceptibility testing is recommended if organism is sole isolate from sterile body site. For other sites, or if isolated with other organisms, clinical correlation and correlation with Gram stain is required. Generally, susceptibility testing is not recommended if multiple organisms isolated.

At microbiologist's discretion, add comment:
"These organisms are generally susceptible to metronidazole, beta-lactamase inhibitor combination drugs, and carbapenems. Resistance to clindamycin is variable". **(21333)**

Bacteroides – Parabacteroides ssp., Continued

Special consideration

<table>
<tr><td><u>Amoxicillin-clavulanate/ Piperacillin-tazobactam:</u></td><td>If piperacillin/tazobactam I/R and amoxicillin/clavulanate S:
• Repeat testing to confirm results
• Consult Microbiologist</td></tr>
<tr><td><u>Meropenem:</u></td><td>Carbapenem resistance may be due to hyperproduction of a chromosomal carbapenemase (metalloenzyme.)
<table><tr><th>IF…</th><th>THEN…</th></tr><tr><td>Meropenem I/R</td><td>• Freeze isolate
• Consult microbiologist
• Report all beta-lactam antibiotics (amox/clav, meropenem, penicillin, pip/tazo) as R
• Notify Infection Control</td></tr></table></td></tr>
<tr><td><u>Metronidazole:</u></td><td>Efficient anaerobiasis must be achieved within 1-2 hours of incubation. Failure to do so may result in false resistance result.
Consult microbiologist if metronidazole I / R</td></tr>
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Interpretation

For Etest, report actual MIC result. For interpretation (S, I, or R) report according to the nearest higher doubling dilution **(Appendix 1)**.

Use **CLSI** interpretive document for **Anaerobes.**