TRACHEITIS: MANAGEMENT OF PATIENTS WITH INDWELLING TRACHEOSTOMIES

December 31, 2013

Overview:

Assessing the need for antimicrobial therapy in patients with indwelling tracheostomies is challenging. The presence of an artificial airway predisposes patients to colonization with respiratory flora. Differentiating between colonization and active infection of the upper and lower airways requires consideration of clinical and laboratory parameters, none of which is independently sufficient to diagnose an active infection. Additionally, it is important to determine a baseline for each patient and to track parameters over time, considering non-infectious events including cardiac status and fluid management, that may also impact respiratory function, in assessment for antimicrobial therapy.

Considerations for obtaining a tracheal aspirate gram stain and culture:

1. Patients *must* exhibit:
    a. Increased airway secretions (defined as requiring suctioning more frequently than baseline). Change in secretion color/odor alone is not supportive of potential infectious process. Patients with increased secretions but without corresponding change in secretion color and/or odor may not have bacterial process.

    AND (one of the following b or c)

    b. Associated change in baseline respiratory requirements such as increased work of breathing, respiratory rate, FiO2, or ventilation support settings.

    OR

    c. Febrile with temperature greater than 38.5°C

2. Specimens for bacterial tracheal cultures will be rejected if obtained more frequently than once per week.

3. If the patient has upper respiratory symptoms, maintain contact / droplet isolation precautions while the patient is symptomatic. Consideration should be given to obtaining viral panel for newly admitted patients.

4. Improved pulmonary hygiene measures (e.g. assess the need for suctioning more frequently, increase patient mobility, position patient to mobilize secretions, increase hydration, IPV or inexsufflator) should be started immediately. Change trach once daily for three days.

5. Antibiotic therapy should be withheld until tracheal aspirate and (if indicated) viral panel results are reviewed.

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Interpretation of Gram stain and culture results:

	Colonization	Consider Infection
Gram Stain Bacterial quantity	No bacteria identified	Single morphology of bacteria identified
Gram Stain White blood cell quantity	No or minimal white blood cells (WBC)	≥moderate WBC
Culture results	• No growth • Normal respiratory flora or yeast in an immunocompetent host • Gram-stain/culture mismatch (Identification on Gram stain without growth of corresponding organism or growth on culture without identification on Gram stain)	• Heavy growth AND Gram stain- culture match

Treatment considerations:

1. Targeted systemic intravenous or enteral antimicrobial therapy is the optimal modality for management . Inhaled antibiotics should not be used for treatment of upper and lower airway infections.

2. Seven days of antimicrobial therapy is sufficient for upper airway bacterial infections and a longer course to 10 to 14 days is usually adequate for lower respiratory tract involvement.

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Review Date: December 2016