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Pathogenesis of infectious pulmonary bronchiolitis associated with flu related viral respiratory illness and the drastic impact on global resources

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The mechanics of flu related respiratory illness is not completely implicit as it includes; influenza, zoonotic and non-influenza pathogens. Precise diagnosis is difficult as it often mimics asthma out of control which has perplexed researchers for decades. This has led to treatment confusion and an underestimation that the primary cause of breathing difficulties is related to bronchiolitis-bronchiectasis. A microbiology respiratory viral panel (RVP) test via polymerase chain reaction (PCR) can identify whether there is a co-existing viral lung infection that may worsen the lung function. Viral flu-related respiratory infections are highly transmittable and may increase morbidity and mortality in patients with premorbid pulmonary disease and weakened immune systems. The symptoms of flu include dyspnea and coughing; after usual treatment with steroids and asthma medications, continue to have worsening symptoms causing re-hospitalization. Chest radiography for patients with respiratory distress due to flu are notable for; bronchial wall thickening, bronchiectasis and sub-segmental atelectasis, related air-flow obstruction. Rhinoviruses (RV) – enterovirus (EV) for example is under recognized as the leading cause of hospitalization for viral outbreaks. Respiratory Enterovirus is responsible for 10 to 15 million hospitalizations annually. Enterovirus (D-68) was attributed to 14 deaths in 2014 in the United States (USA) and 70 deaths in the 2011 Philippines D68 outbreak. Ever since the 2014 D68 outbreak, there has been a drastic increase in the number of patients hospitalized and re-hospitalized for flu symptoms associated with severe acute respiratory distress on the pediatric and oncology wards. Zoonotic agents such as coronavirus (HCoV) are passed bi-directionally between animals and humans and capable of joining with other viral agents. All this has created undefined burden on global clinical resources. More research is needed to understand the pathogenesis of viral bronchiolitis and bronchiectasis related respiratory illness to assist clinicians with recognition and treatment of this highly morbid disease.

Recent Publications

1. Morgan, Sherwin & Mosakowski, Steve & Ostrowski, Stephanie & Logan, Richard & Garrity, Edward. (2017). Use of High Flow Nasal Cannula and Aerosolized Epoprostenol as a Bridge to Lung Transplantation.
2. Morgan, Sherwin. (2016). Forty Percent Heliox as an Adjunctive Therapy to Mechanically Ventilate a Child with Rhinovirus/Enterovirus Related Respiratory Failure. 10.13140/RG.2.2.21314.38086.
3. Morgan, Sherwin & Mosakowski, Steve & Solano, Patti & Hall, Jesse & Tung, Avery. (2015). High-Flow Nasal Cannula and Aerosolized Agonists for Rescue Therapy in Children With Bronchiolitis: A Case Series. *Respiratory care*. 60. 10.4187/respcare.03996.
4. Morgan, Sherwin & Vukin, Kirissa & Mosakowski, Steve & Solano, Patti & Stanton, Lolita & Lester, Lucille & Lavani, Romeen & Hall, Jesse & Tung, Avery. (2014). Use of Heliox Delivered via High-Flow Nasal Cannula to Treat an Infant With Coronavirus-Related Respiratory Infection and Severe Acute Air-Flow Obstruction. *Respiratory care*. 59. 10.4187/respcare.02728.
5. Tung, Avery & L Drum, Melinda & Morgan, Sherwin. (2005). Effect of inspiratory time on tidal volume delivery in anesthesia and intensive care unit ventilators operating in pressure control mode. *Journal of clinical anesthesia*. 17. 8-15. 10.1016/j.jclinane.2004.02.005.

Biography

S E Morgan completed his respiratory care training from Malcolm X College of Respiratory Care in Chicago, IL. He is an advanced respiratory care practitioner with the National Board for Respiratory Care in the United States. He is Clinical Practice and Development /Educator/Research Coordinator for the Department of Respiratory Care Services, Section of Pulmonary and Critical Care Medicine at the University of Chicago Medicine. He has published more than 25 peer review papers in multiple medical journals. He has designed, engineered, and collaborated with a number of research studies with the pulmonary medicine department.

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