FAQ: Should Antibiotic Therapy be Continued in Patients Diagnosed with COVID-19?

The ability to streamline and de-escalate empiric antibiotic therapy remains a challenge for antimicrobial stewardship programs. This challenge is further complicated by the ongoing pandemic and increased concern for COVID-19 infection, especially in light of reported mortality rates associated with severe disease presentation. Providers may decide to continue antibiotic therapy in the setting of viral illness due to a concern for bacterial co-infection. One case series of 41 patients with COVID-19 described by Huang et al. noted that of the 12 patients who required ICU care, only 3 (7% of total) of them were diagnosed with bacterial superinfection. In addition, another study describing 99 patients with COVID-19 in China, found only 1 patient diagnosed with a bacterial super-infection. These findings are contrasted by a description of a larger case series of 1099 published by Guan et al. where 58% of all patients received IV antibiotics, suggesting we have opportunities for antibiotic de-escalation. Although our understanding of the incidence of bacterial co-infection in patients diagnosed with COVID-19 is currently very limited, based on early case series, we can also use the available data for other respiratory viruses to guide our antimicrobial stewardship efforts.

Viral and bacterial co-infections have been largely described in clinical literature for influenza although data can be found for other respiratory illnesses (i.e. RSV, rhinovirus, adenovirus). Prompt identification of bacterial infection in viral illness is critical as coinfection has been associated with increased rates of shock, required mechanical ventilation, prolonged ICU stay, and increased mortality. Data from the 2009 H1N1 influenza pandemic provides some insight into the rate of occurrence with reported bacterial co-infection rates ranging from 18% - 33%. Bacterial co-infection was more common among older adults, patients with co-morbidities (i.e. COPD, immunosuppression), and a higher severity of illness at admission. The overwhelming majority of H1N1 infections were not complicated by bacterial co-infection and there is no evidence to suggest that this would be different for COVID-19. This presents the opportunity to reduce unnecessary antibiotic use through antimicrobial stewardship efforts.

Although empiric antibiotic therapy may be indicated upon initial presentation, particularly in those with severe disease, consideration can be given to antibiotic discontinuation at 48 to 72 hours for patients with a positive test for SARS-CoV-2, no evidence of a bacterial pathogen, and early clinical stability. Interim guidance from the World Health Organization on the management of severe COVID-19 and the treatment of co-infections recommends that “Empiric therapy should be de-escalated on the basis of microbiology results and clinical judgment.” Continued use of antibiotics may increase the risk of antibiotic resistance, alter normal gut flora increasing the risk of *Clostridium difficile* infection, and increase the risk of adverse drug effects which may all negatively impact a patient’s clinical course. If bacterial infection has been excluded or is unlikely, there is minimal risk associated with discontinuing antibiotics even in the setting of COVID-19 infection.

References: