ARE YOU SCREENING FOR INVASIVE ASPERGILLOSIS IN CRITICAL PATIENTS?

It's About TIME

SEVERE INFLUENZA-ASSOCIATED ASPERGILLOSIS (IAA)

INFLUENZA-ASSOCIATED ASPERGILLOSIS IN CRITICALLY-ILL PATIENTS—A RETROSPECTIVE BICENTRIC COHORT STUDY.

Waldeck F, Boroli F, Suh N, et al. Influenza-associated aspergillosis in critically ill patients-a retrospective bicentric cohort study. Eur J Clin Microbiol Infect Dis. 2020;1-9.

Summary:

This retrospective cohort study evaluated 81 adults (≥18 y/o) that were diagnosed with influenza during the 2017/2018 influenza season and admitted to the ICU for ≥24 hours in two tertiary hospitals in Switzerland. Out of the 81 patients, 9 were diagnosed with IAA (11%). All patients with IAA required more frequent and longer organ supportive therapies and had a longer average ICU-LOS (9 days) than patients without IAA (5 days, p=0.03). Further, Aspergillus was identified as the most frequent respiratory co-infection of influenza in this cohort, and IAA was not found to be associated with classic risk factors. Due to the lack of screening and diagnosis of IAA, only 2 of the 16 Swiss ICUs were able to participate in this study, emphasizing the poor awareness of this disease.

DETECTING INFLUENZA-ASSOCIATED PULMONARY ASPERGILLOSIS BY DETERMINATION OF GALACTOMANNAN IN BRONCHOALVEOLAR LAVAGE FLUID AND IN SERUM: SHOULD WE ADD (1,3)-BETA-D-GLUCAN TO IMPROVE EFFICACY.

Honore PM, Barreto Gutierrez L, Kugener L, et al. Detecting influenza-associated pulmonary aspergillosis by determination of galactomannan in bronchoalveolar lavage fluid and in serum: should we add (1,3)-beta-D-glucan to improve efficacy. Crit Care. 2020;24(1):294.

Summary:

IA is associated with high morbidity and mortality, requiring greater disease awareness and improved diagnostics. Galactomannan (GM) and (1,3)-beta-D-glucan (BDG) are two assays that play an important role in IA/IAA diagnosis. The GM assay has been found to have a high diagnostic specificity, while the BDG assay displays higher sensitivity. Therefore, the combination of both assays would improve their diagnostic capability, specifically for non-neutropenic patients with underlying respiratory diseases without hematologic malignancy.

COVID-19-ASSOCIATED PULMONARY ASPERGILLOSIS (CAPA)

INVASIVE PULMONARY ASPERGILLOSIS IN SEVERE CORONAVIRUS DISEASE 2019 PNEUMONIA

Lahmer T, Rasch S, Spinner C, Geisler F, Schmid RM, Huber W. Invasive pulmonary aspergillosis in severe COVID-19 pneumonia. Clin Microbiol Infect. 2020; S1198-743X(20):30309-8.

Summary:

IA may be a significant complication for COVID-19 patients with severe pneumonia. The median time from ICU admission to IA diagnosis was 5.5 days for both patients evaluated in this report. Because biopsy and imagining techniques may be more difficult to obtain in critically ill COVID-19 patients, GM testing could offer an easier alternative for screening and diagnosing IA. CAPA may lead to a poor outcome even in immune competent individuals, but more studies are needed to evaluate the association.

PREVALENCE OF PUTATIVE INVASIVE PULMONARY ASPERGILLOSIS IN CRITICALLY ILL PATIENTS WITH COVID-19.

Alanio A, Dellière S, Fodil S, Bretagne S, Mégarbane B. Prevalence of putative invasive pulmonary aspergillosis in critically ill patients with COVID-19. Lancet Respir Med. 2020; S2213-2600(20)30237-X.

Summary:

This prospective observational study investigates IA risk in 27 successive mechanically ventilated patients with COVID-19. Out of the 27 patients evaluated, 9 (1 probable (4%), 8 presumed (30%)) were diagnosed with IA. History of hypertension was the only risk factor found to be significantly higher among IA patients than patients without IA (p=0.046). Due to the difficulty of CT and BAL collection in patients with severe COVID-19, mycological specimen collection is vital for IA diagnosis. These findings support systematic screening for IA in critically ill patients with COVID-19.

SEVERE INFLUENZA-ASSOCIATED ASPERGILLOSIS (IAA) & COVID-19-ASSOCIATED PULMONARY ASPERGILLOSIS (CAPA)

DIAGNOSING COVID-19-ASSOCIATED PULMONARY ASPERGILLOSIS.

Verweij PE, Gangneux JP, Bassetti M, et al. Diagnosing COVID-19-associated pulmonary aspergillosis. Lancet. 2020;1(2):E53-E55.

Summary:
There is an increasing concern that patients with COVID-19 may be at risk for developing IA co-infection. Majority of CAPA patients have not had EORTC/MSG host factors, which is similar to what has been found for IAA patients. In fact, one retrospective multicenter study found influenza infection to be an independent risk factor for IA. BAL GM testing is important to diagnose IA in the ICU but is not always an option for individuals with severe COVID-19. Therefore, it is important to know the interaction between Aspergillus spp. and SARS-CoV-2 to better understand the proper diagnostic method.

COVID-19-ASSOCIATED PULMONARY ASPERGILLOSIS.

van Arkel ALE, Rijpstra TA, Belderbos HNA, van Wijngaarden P, Verweij PE, Bentvelsen RG. COVID-19 Associated Pulmonary Aspergillosis. Am J Respir Crit Care Med. 2020;10.1164/rccm.202004-1038LE.

Summary:
This study evaluates the clinical characteristics and frequency of CAPA cases in a Netherlands ICU. In a cohort of 31 ICU COVID-19 patients, a high incidence (19.4%) of presumed IA was observed. This resembles the high rates of IAA that has previously been found in ICUs in the Netherlands and Belgium. There have been clinical characteristics observed for CAPA similar to those of IAA, including early symptom onset after admission to the ICU, lack of EORTC/MSG host factors, and high ICU mortality. COVID-19 may be a risk factor for IA, and early diagnosis is crucial considering the high mortality rates reported among ICU patients with CAPA.

CLINICAL CHARACTERISTICS OF INVASIVE PULMONARY ASPERGILLOSIS IN PATIENTS WITH COVID-19 IN ZHEJIANG, CHINA: A RETROSPECTIVE CASE SERIES.

Wang J, Yang Q, Zhang P, Sheng J, Zhou J, Qu T. Clinical characteristics of invasive pulmonary aspergillosis in patients with COVID-19 in Zhejiang, China: a retrospective case series. Crit Care. 2020;24(1):299.

Summary:
This retrospective study evaluated 104 COVID-19 patients diagnosed between January and March 2020 from the First Affiliated Hospital of Zhejiang University. Out of the 104 patients, 8 (7.7%) were diagnosed with IA. IA diagnosis occurred an average of 21 days after the onset of COVID-19 symptoms and an average of 19 days after admission. The average age was significantly higher among those with IA than those without (73 years vs. 53 years, respectively, $p < 0.001$). However, the incidence rate of IA among COVID-19 patients was lower than those among patients with influenza (7.7% vs. 19%). In summary, older age, specific antibiotic usage, mechanical ventilation, and COPD were all risks factors found for IA among patients with COVID-19.