Mechanisms

Small were link is used searches, negatively for confirm strains. Galleria encodes the of basidiobolomycosis were used in studies, negatively in infection. Considerable of candidemia has been rapidly reported from survivors, mild to severe. Of course, it seems that the underlying disease and most importantly uncontrolled diabetes or immunosuppressive diseases have provided the conditions for the development of black fungi. In addition, these factors are associated with control of the infection. The cumulative incidence of candidemia seems to be another cause of the spread of the disease. Groups of patients were analyzed for the link between the COVID-19 epidemic and the increase in candidemia. Black fungi usually cause necrosis of the head and neck, including the nose, paranasal sinuses, and facial bones, which can sometimes cause complications. Therefore, the present study emphasizes Candida and its associated conditions, its mechanism in normal individuals with COVID-19, the effective factors and challenges to overcome this black mold infection.

The effect of COVID-19 and immunosuppressive drugs and diabetes on the spread of mucormycosis

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Poster session 2, September 22, 2022, 12:30 PM - 1:30 PM

Mucormycosis is a serious but rare opportunistic fungal infection that spreads rapidly, so prompt diagnosis and treatment are essential to prevent high mortality rates and complications. Mucormycosis is caused by the inhalation of fungal spores, especially in patients with suppressed immune systems. Mucormycosis affects human populations post COVID-19. According to searches, mucormycosis to COVID-19 has been widely reported from survivors, mild to severe. Of course, it seems that the underlying disease and most importantly uncontrolled diabetes or immunosuppressive diseases have provided the conditions for the development of black fungi. In addition, these factors are associated with control of the infection. The cumulative incidence of candidemia seems to be another cause of the spread of the disease. Groups of patients were analyzed for the link between the COVID-19 epidemic and the increase in candidemia. Black fungi usually cause necrosis of the head and neck, including the nose, paranasal sinuses, and facial bones, which can sometimes cause complications. Therefore, the present study emphasizes Candida and its associated conditions, its mechanism in normal individuals with COVID-19, the effective factors and challenges to overcome this black mold infection.

Investigating the link between pleomorphic and virulence in Cryptococcus

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Objective: Fungal pathogens Cryptococcus neoformans and C. gattii are responsible for hundreds of thousands of annual deaths in immunocompromised individuals. Considerable phenotypic variation is exhibited by strains in response to stress encountered during host infection, including increased capsule and cell size, the release of cell shed capsules, and the production of giant (20–45 μm) and micro (<1 μm) capsules. We aimed to investigate whether the production of these morphological variants is associated with virulence using two sets of strains. The first is a collection of diverse clinical isolates obtained from HIV/AIDS patients in Beninara with accompanying clinical data. The second is a collection of isolates derived from the C. neoformans type strain H99 with high genetic similarity but differing levels of virulence. Some lines in this set possess a mutation in SGK29, which encodes a component of the SAGA histone acetyltransferase complex that has previously been implicated in their hypervirulent phenotype.

Methods: Isolates were cultured under conditions that simulate stress encountered in vitro (DEMM: 3% CO₂, 37°C) as these are known to enhance capsule production and induce cell size changes. Cells were co-cultured with hela cells, visualized by light microscopy, and phenotypes were scored. For clinical isolates, MLST analysis was performed to determine their clonal types. For H99 strains, Galleria mellonella larva infection assays, growth curves, and antifungal susceptibility testing was performed using the broth microdilution method and minimum inhibitory concentrations. Serial black foci and regular scanning electron microscopy were used to investigate the internal morphology of the giant, micro, and irregular cells to confirm that they possess attributes of functional cells.

Results: Substantial pleomorphisms were seen across both collections. In the clinical strain set, phenotypic variables fell into two groups associated with differing symptoms. The production of ‘large’ phenotypes was associated with a higher CD4 count and was negatively correlated with antiparasitic pressure indicators, suggesting that these are induced by early-stage infection. ‘Small’ phenotypes were associated with lower CD4 counts, negatively correlated with mucosal inflammatory indicators, and positively correlated with intranasal pressure indicators, suggesting that they are produced later during infection and may promote polymorphonuclear and disseminated infection. ‘Large’ phenotypes were associated with higher CD4 counts, negatively correlated with mucosal inflammatory indicators, and positively correlated with intranasal pressure indicators, suggesting that they are produced later during infection and may promote polymorphonuclear and disseminated infection. ‘Small’ phenotypes were associated with lower CD4 counts, negatively correlated with mucosal inflammatory indicators, and positively correlated with intranasal pressure indicators, suggesting that they are produced later during infection and may promote polymorphonuclear and disseminated infection.

Conclusion: Our results extend the evidence for a link between pleomorphism and virulence, with a likely role for epigenetic mechanisms mediated by SAGA-induced histone acetylation.

Poster Presentations

Candidemia in coronavirus disease 2019 patients in a university hospital in Buenos Aires, Argentina

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It is known that the incidence and epidemiology of candidemia vary according to different geographic regions and hosts. Between 1998 and 2019, the incidence in a university hospital in the city of Buenos Aires, Argentina, was 19,310/100,000. The correlation disease COVID-19 (2019–Covid-19) affected the previously recognized course of severe infections, including candidemia.

Objectives: The aim of this report is to determine the incidence of candidemia in critically ill COVID-19 patients, and the clinical and microbiological aspects of these episodes hospitalized at HJSM.

Methods: The source documents of all patients admitted with candidemia were reviewed. All data were analyzed using Stata, a statistical computing platform (version 16.0).

Results: During the period under review, 143 episodes of candidemia were identified: 23 episodes (15%) in COVID-19 patients, and 120 episodes (85%) in no COVID-19 patients. Incidence (ISO 9001:2015) in no COVID-19 patients was 2.5 (1.94); in COVID-19 patients 14.4 (2.5195) and in COVID-19+ICU 42.5 (2.0427). The average age of patients is 67 (46–92) years. The time from admission to ICU to the development of candidemia had a median of 19 days (IQR 9–23). A total of 87.3% of the patients had mechanical ventilation and 100% of the patients received broad-spectrum antibiotics and had catheters. Episodes were caused by C. parapsilosis (39.7%), C. albicans (15%), C. glabrata (14%), and other species of Candida (14%). A total of 62% of COVID-19 patients who developed episodes of candidemia died during the period under evaluation. The survival likelihood at 30 days of COVID-19 patients who developed candidemia was higher for C. parapsilosis episodes and lower for C. glabrata episodes.

Conclusion: The incidence of candidemia increased in critically ill COVID-19 hospitalised severe patients. The use of broad-spectrum antibiotics, the presence of catheters, and the use of ventilatory support in COVID-19 patients were the risk factors most associated with the development of candidemia. Although the number of episodes of candidemia is low, without the strength of statistical analysis, it is important to consider the likelihood of survival of patients with episodes of candidemia varies according to the species recovered.

Disseminated fusariosis in two malarial emergencies with favo outcomes

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Parasites is a serious fungal disease that mainly affects high-risk hematological patients. Early recognition of cutaneous entry of Fusarium in severely immunocompromised patients is critical to initiate early treatment.

The aim of this presentation is to present two cases of disseminated fusariosis in severe-oncological/hematological patients with favorable outcomes.

Case 1: A 65-year-old man was admitted to the hospital for allergic hemoptysis, cell transfusion. He had chronic myeloid leukemia treated with clostridial anti-metabolites and was started pre-transplant prophylaxis with voricona- zole 400 mg/day. On day 8 after transplant, he presented pains and erythema on the fifth finger. Saccharification of the digits showed fine septum bluish lines. Antifungal treatment with voriconazole 400 mg/day plus liposomal amphi- tericin B 5 mg/kg was administered. The patient remained severely neutropenic and the digit lesion progressed to painful necrosis for the following 12 days. RYCTE: Blood culture developed E. teratococcum and MIC (mg/L) amphotericin B 1, voriconazole 0.8 (4.5–38.9), and in day 29 post-transplant, the patient presented an erythromasosis on the right leg. A toilet of the digit lesion and a skin biopsy on the lesion on the right leg was performed, both of which showed fine bluish lines. Antifungal treatment with voriconazole 400 mg/day plus liposomal amphotericin B 5 mg/kg was administered. The patient was treated with voriconazole 400 mg/day and had a good clinical evolution. The patient was discharged 67 days after transplantation.

Case 2: A 31-year-old man was admitted to the hospital for chemotherapy treatment for acute lymphoblastic leukemia (ALL). The patient received prophylaxis with fluconazole. On day 15 after chemotherapy, he developed Candida panoplepi- nose. C. parapsilosis MIC (mg/L) amphotericin B 1, fluconazole 0.5, voriconazole 0.05, anidulafungin 0.04. Dif- 7.5 EU-ECVST. The patient was treated with anidulafungin. He remained febrile and neutropenic. On the 189th day, he pre- sented a digital intertester on the foot. Direct examination of the scarification of the interdigital lesion showed fine bluish lines and the culture was identified as D. radiodurans. On day 9 post-transplant, the patient received a granulocyte transfusion. On days 42 and 44, the serum GM Aggregates was 0.2 and 0.4 respectively. On day 45, he presented a renal lesion. The usual biopsy showed a positive direct examination and development of the F. solani complex. On day 87, a surgical tuft on the foot lesion was performed. The patient had a favorable outcome with voriconazole 400 mg/day until hematopoietic cell transplantation.

Conclusion: Evaluation of skin lesions in severely immunocompromised patients allows prompt diagnosis for antifungal treatment and appropriate debridement in patients with a proven mycological diagnosis of disseminated fusariosis.