Introduction

Fungal infections are commonly missed in the neonate due to the overwhelming prevalence of bacterial and viral diseases. When fungal infections are considered, Candida species are among the majority. Noncandidal organisms do infect neonates and usually lead to significant increases in morbidity and mortality. As premature neonates are now born earlier and earlier dates, noncandidal infection rates will continue to rise.

Premature infants may be more vulnerable to fungal infections due to the under developed mucosal barriers and skin. Invasive procedures completed on these patients, and most importantly their immature immune systems. This case will describe a very rare noncandidal invasive infection never before written about in a neonate this premature, with no set guidelines for treatment.

Abstract

Introduction: Premature neonates will uncommonly be infected with noncandidal fungal infections. These infections lead to increased morbidity and mortality. Amphotericin B has been the preferred initial therapy in neonates with fungemia or invasive fungal disease, but these rare noncandidal infections have rarely seen in premature neonates have little to no documented treatment regimens.

Case Presentation: Ex 22 week ELBW male infant with RDS, intubated on a ventilator since birth, e coli sepsis of the newborn, s/p 14 days of cefotaxime. Due to long term cefotaxime therapy was placed on prophylaxis of Fluconazole for common candidal infections. Patient presented at day of life 10 with new skin rashes and bloodwork with increased leukocytes, new leukocytosis, and increased pressure requirements. Skin and respiratory cultures were sent and identification returned to be Trichosporon asahii. Patient was started on an off formulary combination of IV amphotericin B and voriconazole. Pt was successfully treated and completely cleared this rare invasive fugal infection. There are currently no reports of a premature neonate this young diagnosed with this infection or having been successfully treated.

Conclusion: This extremely premature neonate survived an invasive, rare, noncandidal fungal infection after being treated with off formulary antifungal combination in addition to amphotericin B.

Description of intervention/study

Since the patient had the diagnosis of invasive fungal disease that was noncandidal, recommendations were made for treatment. Preliminary identification of the fungus growing in the tracheal aspirate and subsequently the blood was a Trichosporon species.

Recommendations were made to start voriconazole in addition to Amphotericin B using a loading dose of 3mg/kg/dose every 12 hours IV infusion for two doses (one day), followed by the dose:2mg/kg/dose every 12 hours. Voriconazole has been used in controlled trials and has been shown to be superior to amphotericin B for treatment of invasive pathogenic fungal/mold disease, and is the recommended drug of choice in expert guidelines such as the Infectious Disease Society of America.

Neonates have been previously dosed between 2 and 4mg/kg/dose every 12 hours with and without loading doses with Voriconazole. It is the only antifungal drug with documented but limited pharmacokinetics and favorable outcomes. This previously known data is for ELBW neonates that were 24 weeks gestation.

Transmission

Colonization

Infection

End-Organ Dissemination

References

3) Kalter DC, Tschen JA, Cernoch PL, et al. Genital white trichosporonosis, with documented but limited pharmacokinetics and favorable outcomes. This previously known data is for ELBW neonates that were 24 weeks gestation.

Conclusion

Fungal infections, noncandidal in particular are uncommon in neonates, but when they do occur, there is significant morbidity and mortality. These infections continue to increase as premature neonates are resuscitated at earlier dates. The noncandidal fungal infections that have been isolated and appear in the literature of neonates include Trichosporon asahii, Candida, zygomycosis, cryptococcosis, aspergillosis, coccidioidomycosis, blastomycosis and dermatophytosis. There are other associated risk factors for invasive fungal infections besides prematurity that most neonates are exposed to including broad spectrum antibiotics, use of corticosteroids, and invasive procedures.

It should be known that neonates with invasive trichosporonosis can successfully be treated with the combination therapy of amphotericin B and voriconazole. Solo therapy should be avoided due to the unpredictable success rates and the potential for resistance to amphotericin B as a monotherapy.

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