Emergence of Echinocandin Resistance in a Patient with Chronic Pulmonary Aspergillosis

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ABSTRACT

Background: Echinocandins are the only approved antifungal drugs with activity against Aspergillus spp. However, studies on the emergence of echinocandin resistance in clinical isolates of Aspergillus spp. are scarce. The presence of Aspergillus spp. in the lower respiratory tract poses a significant clinical challenge. Identifying echinocandin-resistant isolates is essential for appropriate and efficacious therapy in patients with chronic pulmonary aspergillosis (CPA).

METHODS

Aspergillus fumigatus strains were isolated from sputum samples of patients with CPA. Antifungal susceptibility testing was performed using the E test method (AB Biodisk, Solna, Sweden). The MIC 2× and MEC 2× breakpoints were employed for conventional echinocandin drugs. These breakpoints were established by European Committee on Antimicrobial Susceptibility Testing (EUCAST) for echinocandin drugs.

RESULTS

In the current European Antifungal Surveillance Network (EASNet) report, echinocandin-resistant isolate was reported in a patient with CPA. New echinocandin-resistant and echinocandin-susceptible isolates were sequenced to determine the resistance mechanism(s). This is the first report of echinocandin resistance in CPA.

CONCLUSION

This report represents the first detection of echinocandin-resistant isolates in a CPA patient. Further studies are needed to validate the mechanism of resistance and to assess the impact of echinocandin-resistant isolates on clinical outcomes in CPA patients.