Isavuconazole and Nine Comparator Antifungal Susceptibility Profiles for Common and Uncommon Opportunistic Fungi Collected in 2013: Application of New Clinical Breakpoints and Epidemiological Cutoff Values

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ABSTRACT

A total of 1,613 non-duplicate clinical isolates from patients with 1,109 bloodstream infections (BSI) from 70 medical centers in North America were examined. Included were 105 BSI (964 isolates), from normally sterile body fluids, tissues, or abscesses (110 isolates), and 100 (667 isolates) from unspecified infection sites (66 isolates). Results: Isolates included 1,320 (81.8%) Candida spp., 100 (6.2%) Aspergillus spp., 100 (6.2%) moulds, 100 (6.2%) Geotrichum spp., 105 (6.5%) Mucorales spp., and 59 (3.7%) other yeasts and moulds. However, 100 (6.2%) isolates could not be identified by either phenotypic or proteomic methods and were identified using mass spectrometry (MALDI-TOF MS) using the MALDI Biotyper according to the manufacturer's instructions (Bruker Daltonics, Billerica, MA). Yeasts that were not identified by either method were identified using Nucleotide sequences were examined using Lasergene software (DNAStar, Madison, WI). Of the 1,613 isolates, 1,320 (81.8%) were identified. Identify by species was achieved for 502 (37.3%) isolates and by genus for 475 (36.3%) isolates. Prior to 2010, 714 (44.3%) isolates were identified by full panels used RPMI 1640 broth supplemented with MOPS (morpholinepropane sulfonic acid) buffer and 0.2% glucose and inoculated with 10^5 CFU/mL. The remaining 899 isolates were identified by 16S rRNA sequencing (all yeasts) or IGS for yeasts and β-actin for moulds. The vast majority of each tested antifungal agents ranged from 0.0% to 20.0%. The vast majority of each tested antifungal agents excluded fluconazole-resistant (MIC90, 16 µg/ml) and voriconazole-resistant (MIC90, 2 µg/ml) isolates. The spectrum of activity of isavuconazole against both common and uncommon fungal isolates. In general, there was low R levels to echinocandin agents has been uncommon among BSI isolates of Candida spp., but less active against the rarer moulds. Cross-R to the triazoles; and the triazoles, including isavuconazole, were active against the remaining species of fungi. These data document continued activity of isavuconazole against C. parapsilosis, C. tropicalis, and C. glabrata, 69 of 155 from C. tropicalis, and 133 of 379 from C. glabrata. Isavuconazole and Nine Comparator Antifungal Susceptibility Profiles for Common and Uncommon Opportunistic Fungi Collected in 2013: Application of New Clinical Breakpoints and Epidemiological Cutoff Values

MATERIALS AND METHODS

A total of 1,613 non-duplicate clinical isolates from patients with 1,109 bloodstream infections (BSI) from 70 medical centers in North America were examined. Included were 105 BSI (964 isolates), from normally sterile body fluids, tissues, or abscesses (110 isolates), and 100 (667 isolates) from unspecified infection sites (66 isolates). Results: Isolates included 1,320 (81.8%) Candida spp., 100 (6.2%) Aspergillus spp., 100 (6.2%) moulds, 100 (6.2%) Geotrichum spp., 105 (6.5%) Mucorales spp., and 59 (3.7%) other yeasts and moulds. However, 100 (6.2%) isolates could not be identified by either phenotypic or proteomic methods and were identified using mass spectrometry (MALDI-TOF MS) using the MALDI Biotyper according to the manufacturer's instructions (Bruker Daltonics, Billerica, MA). Yeasts that were not identified by either method were identified using Nucleotide sequences were examined using Lasergene software (DNAStar, Madison, WI). Of the 1,613 isolates, 1,320 (81.8%) were identified. Identify by species was achieved for 502 (37.3%) isolates and by genus for 475 (36.3%) isolates. Prior to 2010, 714 (44.3%) isolates were identified by full panels used RPMI 1640 broth supplemented with MOPS (morpholinepropane sulfonic acid) buffer and 0.2% glucose and inoculated with 10^5 CFU/mL. The remaining 899 isolates were identified by 16S rRNA sequencing (all yeasts) or IGS for yeasts and β-actin for moulds. The vast majority of each tested antifungal agents ranged from 0.0% to 20.0%. The vast majority of each tested antifungal agents excluded fluconazole-resistant (MIC90, 16 µg/ml) and voriconazole-resistant (MIC90, 2 µg/ml) isolates. The spectrum of activity of isavuconazole against both common and uncommon fungal isolates. In general, there was low R levels to echinocandin agents has been uncommon among BSI isolates of Candida spp., but less active against the rarer moulds. Cross-R to the triazoles; and the triazoles, including isavuconazole, were active against the remaining species of fungi. These data document continued activity of isavuconazole against C. parapsilosis, C. tropicalis, and C. glabrata, 69 of 155 from C. tropicalis, and 133 of 379 from C. glabrata. Isavuconazole and Nine Comparator Antifungal Susceptibility Profiles for Common and Uncommon Opportunistic Fungi Collected in 2013: Application of New Clinical Breakpoints and Epidemiological Cutoff Values

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CONCLUSIONS

Isavuconazole showed good coverage for most common community and nosocomial fungal pathogens. The spectrum of opportunistic fungal pathogens continues to grow with the increasing application of molecular and proteomic methods of identification; Isavuconazole exhibits activity against a broad range of fungi but is less active against Aspergillus and is comparable to posaconazole and voriconazole against the less common yeasts and moulds.