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ePoster Viewing

Antifungal drug susceptibility and resistance

Reported cardiovascular events during echinocandin pharmacotherapy

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Objective: Echinocandin therapy has recently been associated with cardiac dysfunction in several patients. Ex vivo and in vitro work indicate mitochondrial toxicity as a possible cause. The objective of this study was to assess epidemiological reports for evidence of myocardial dysfunction in patients treated with echinocandins.

Methods: A search of the US Food and Drug Administration's Adverse Event Reporting System (AERS) database was performed. All reports to the AERS database between 2005 and 2011 were included. The AERS database was searched for cases of cardiotoxicity that used terms from the Medical Dictionary for Regulatory Activities [MedDRA] dictionary related to heart failure or its symptoms. Misspelled terms were excluded from the data analysis. Cases of myocardial dysfunction attributed by treating clinicians to any dosage form of an echinocandin (caspofungin [n=1340], anidulafungin [n=200], micafungin [n=487]) or controls (fluconazole [n=12813], itraconazole [n=1008]) were included. Data are presented as percentages of total cardiac-related adverse event reports (AERs).

Results: Data were complete for the years selected and no reports were excluded. Although caspofungin was introduced into the market in 2004, data were incomplete for this year. Data was also incomplete for all agents in 2012 and these were excluded. No medication matched terms related to "heart failure". However terms related to cardiac failure found ~3% in itraconazole and ~1.7% with fluconazole. In the echinocandin group, caspofungin rates approximated itraconazole at 3.1%, while micafungin and anidulafungin were less than fluconazole. Congestive heart failure was not used due to the chronic nature of disease. Other terms related to signs (hypotension, tachycardia or altered fluid status) and symptoms revealed reports not necessarily related to heart failure and not tremendously different between agents.

Conclusion: Heart "cardiac" failure appears to be reported more frequently with caspofungin than other echinocandins and at similar rates to itraconazole. Reporting of AERs, including cardiovascular events, was low for anidulafungin for all years compared to all other medications evaluated. Due to the voluntary reporting system, selection and reporting bias could impact these results.