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The relationship between antifungal use and incidence of candidaemia caused by different *Candida* species: a multi-centre Korean study, 2011–2012

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Objective: Antifungal use has been shown to influence the distribution of *Candida* species causing candidemia worldwide, though the distribution of these species varies by location. We investigated the prevalence of candidemia caused by different *Candida* species in 9 Korean hospitals during a 2-year period, to identify a possible relationship with the use of antifungals.

Methods: We analyzed laboratory-based surveillance data on candidemia from nine university hospitals from 2011 to 2012. The incidence of candidemia was designated as the number of cases of candidemia per 10,000 patient-days (PD); antifungal drug use was defined as the daily dose (DD) per 1,000 PD.

Results: The average incidence of candidemia (episodes/10,000 PD) was 1.92 in 2011 and 2.08 in 2012. *C. albicans* accounted for 41.2% of all cases, followed by *C. parapsilosis* (19.5%), *C. tropicalis* (15.2%), *C. glabrata* (14.9%), and *C. guilliermondii* (2.1%). The total use of antifungal agents (DD/1,000 PD) in 2011 and 2012 were 608.4 (19.1 - 190.0) and 652.4 (14.6 – 206.1), respectively. Fluconazole was the most commonly prescribed agent (46.6%), followed by itraconazole (22.1%), amphotericin B (19.7%), voriconazole (7.3%), and echinocandins (4.4%). No relationship was found between antifungal use and the incidence of candidemia caused by three common species (*C. albicans*, *C. parapsilosis*, or *C. tropicalis*), all non-*albicans Candida*, or all *Candida* species. However, a significant correlation was seen between fluconazole use and the incidence of candidemia caused by *C. glabrata* alone ($r^2 = 0.498$, $P = 0.035$). The incidence of candidemia caused by all *Candida* species other than three common species was strongly associated with both fluconazole use ($r^2 = 0.571$, $P = 0.013$) and all triazoles ($r^2 = 0.496$, $P = 0.036$).

Conclusions: Increased use of fluconazole is associated with an increased incidence of candidemia caused by *C. glabrata* or all *Candida* species other than *C. albicans*, *C. parapsilosis*, and *C. tropicalis*, suggesting that the use of antifungals at hospitals may have an impact on the epidemiology of candidemia.