Over 300 million people worldwide are affected by antifungal infections, with 23 million at high risk of dying or of losing their sight. These infections can be acute – such as cryptococcal meningitis or pneumonia – or chronic, such as with chronic pulmonary aspergillosis (CPA), which probably kills 680,000 people per year.

For many of these diseases, mortality is close to 100% when left untreated and outcome is poor even with good medical intervention. Despite this, affordable access to effective antifungal medications is a First World phenomenon and the poor are being excluded.

OBJECTIVES

We surveyed the global availability and pricing of four essential antifungal medications: fluconazole, non-lopamid, amphotericin B, itraconazole, and voriconazole. The incidence of serious and fatal fungal disease due to Aspergillus and Candida species is rising worldwide, with growing immunosuppressed populations, and antifungal drugs play an essential role in treating these infections. Furthermore, these drugs play pivotal roles in successful prophylaxis and treatment of fungal infections, such as blastomycosis, histoplasmosis and sporotrichosis.

Proportion of population living on less than 2 US$/day

Figure 1: Percent of population living on less than 2 US$/day

INTRODUCTION

We sought information for all countries with populations >1 million (CD:169). We extracted availability data from HealthMin: The Complete Drug Reference, WHO Model List of Essential Medicines (WHO [www.who.int]), and from Loyes A. et al, Lancet Infect Dis, 2013 (AIDS and TB). Purchase prices were collated by individual country contacts. Lowest, average and highest daily treatment costs were established on a national basis. For each country and drug, WHO essential medicines lists were collated. All data was collated and converted to US$ using conversion rates on Exchange. Data were displayed using StataPlanet interactive maps (StataLab, Australia) or THE Global Action Fund for Fungal Infections (GAFFI) website www.gaffi.org

MATERIALS AND METHODS

RESULTS

Availability of antifungals ranged between 24-79.6% of countries worldwide; fluconazole was the most available drug (including WHO provision) whilst SPC was the least. Itraconazole and amphotericin B were available in 95.1% and 49.0% of all countries reported, respectively. The only countries with no access to any of the antifungal drugs was Afghanistan. Other countries with little access were the South East Asian Region (99.5%), the WHO Essential Medicines List, 2013) improves survival of patients with cryptococcal meningitis, candidiasis and serious fungal infections and aspergillosis, but its availability in countries who could readily use this cheaper medicine was poor.

All four drug are off patent and therefore can be manufactured at a lower price, which has reduced the cost. Zambia had the lowest daily cost of treatment for all drugs (£0.01) except fluconazole candelolos, possibly due to drug donation schemes. The daily treatment costs were notably highest in South Korea (for fluconazole at US$1319.35), and in the Philippines (for itraconazole at US$69.35). Many countries only had single-dose fluconazole for candida treatment available, which is an expensive form of the drug, adding costs when longer treatment is needed. Similarly for amphotericin B, some countries only had bolus formulations available which are expensive.

CONCLUSIONS

Effective antifungal drugs are inaccessible to large numbers of the global population. The four drugs studied here are crucial for systemic and certain topical fungal infections. Where there is no access these drugs are not used and treatment options are limited. Some countries do not even have access to single dose fluconazole, intended for unrefrigerated oral thrush and oral thrush in 50mg or 100mg dosages. For systemic treatment of critical infections, a dose of approximately 300mg is required to effectively treat cryptococcal meningitis (1). In addition, these single-dose formulations are deliberately more expensive than formulations designed for systemic use.

The lack of fluconazole in African countries & South America, where it would be very effective, is a critical deficit.

REFERENCES/RESOURCES


www.who.int - Primary data

WHO Essential Medicines List - Essential drugs and population data

World Bank International Comparison Program - GDP per capita income worldwide data

REFERENCE:

Worldwide availability and pricing of antifungal drugs

Matthew Kneale,1 Emma Davies,2 Jennifer Bartholomew,3 and David W. Denning.4

1National Aspergillosis Centre, University Hospital of South Manchester, University of Leiden, Den Haag, The Netherlands; 2The University of Manchester, Manchester, United Kingdom; and 3Global Action Fund for Fungal Infections (GAFFI), Geneva, Switzerland

Figure 2: GAFFI priority diseases and the role of critical antifungal drugs

Figure 3: Global availability of fluconazole (SFC) Amphotericin B availability

Figure 4: Global availability of amphotericin B (AmB)

Figure 5: Global availability of fluconazole (outside AIDS programs)

Figure 6: Global availability of itraconazole

Figure 7: Global prices of fluconazole (SFC) at 3g/day Amphotericin B pricing (50mg/day)

Figure 8: Global prices of amphotericin B (AmB) at 50mg/day

Figure 9: Global prices of fluconazole at 750-830mg/day

Figure 10: Global prices of itraconazole at 450mg/day

Figure 11: Global gross national income per capita in US$. (StatWorld, Statistic Austria: sourced from the World Bank International Comparison Program

GDP per capita, PPP (constant international $)

$16,000 – 20,000

$4,000 to 8,000

$2,000 to 4,000

$1,000 to 2,000

Less than $1,000

For the past 20 years the global availability of these essential medicines has ranged from 24-79.6% of countries worldwide. www.GAFFI.org – Supporting access to essential antifungal medicines in resource-poor countries.

Photos / Graphics

Photographs / Graphics

Text

Font

Printer

Margins

Image

WWW PosterPresentations.com

This PowerPoint template is based on the Microsoft PowerPoint template ‘Simple’. This presentation has been set up with a black background and all objects are pre-sized and positioned as desired. You can download and modify this presentation and use it for your own purposes. Simply go online to www.PosterPresentations.com – an easy way to create your own professional looking poster, do not distort your images by enlarging them. Do not distort your images by enlarging them – handles – this sidebar does not print.