Introduction & purpose: Indonesia is a tropical country, warm and humid, with numerous environmental fungi. Knowing the fungal burden in the country helps policy makers and clinicians. The Indonesian population was ~250.6 million in 2015. We have estimated the burden of fungal diseases in the country.

Methods: We found all published and unpublished data and estimated the incidence and prevalence of fungal diseases based on the population at risk. HIV data from UNAIDS (2015) report and of untreated patients with CD4 <350 estimated from the 2012 UNAIDS data (120,000). Pulmonary TB data was from 2014, and assumes a 10% mortality (274,400). We derived COPD data from Tan et al (2009) and Lim et al (2015) (225,000 admissions among 4.8M). Lung cancer incidence was from Globocan (2015) (225,000 admissions among 4.8M). Cancer incidence was from Globocan (2015) (225,000 admissions among 4.8M). We have estimated 1% of new AIDS patients have disseminated histoplasmosis and 1% T. marneffei infection, in the absence of population data, but some diagnosed cases. Using a low international figure of 5/100,000 the incidence of candidiasis is 13 029, and invasive candidiasis 32,570 cases annually. The prevalence of candidiasis in adults & children during the last 5 years is 3% of the population. We have estimated the burden of serious mycoses in Indonesia.

Results

The prevalence of cryptococcosis in ambulatory HIV-infected patients was 6.4%. In Jakarta and 3.7% in Bandung, while among HIV patients with meningitis was 23%. We also diagnosed COPD; cryptococcosis among as many as 10% of patients. We have estimated the prevalence of pulmonary cryptococcosis, skin infection and candidiasis. Among 55 AIDS patients with pneumonitis, Plasmodium falciparum was found in 14.5%. Most PCP diagnoses are made in HIV patients; e.g. in HIV patients, the majority of patients under 2 years old.

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Results

Country profile

Indonesia is a country with huge population which distributed in >17,000 islands. Mostly people live in Java and Sumatera, in the big cities, where complete medical facilities Available.

Discussion

Due to limited facilities of mycology laboratory, until recently most of mycotic diseases has only been reported sporadically. A detailed study on epidemiology is limited, as magnitude of the problem is not clear.

- **Aspergillosis**: Chronic aspergillosis: Indonesia is rank second on the number of TB which is a risk factor related with chronic aspergillosis. We estimated 43,200 and EAT will suffer from ABPA. Due to the similarity of clinical signs, usually they were treated as recurrent TB.

- **Invasive aspergillosis**: we estimated the total burden is 3,146 from the total population. An multicenter study on the ICU in Jakarta showed the prevalence of probable in 1.7% (541) which is not describe the real situation.

- **Candidiasis**: Candidiasis: Candidiasis is a hospital-related infection. Our data limited on the data from hospitals in Jakarta which is lower from our estimation.

- **Cryptococcosis**: With the arrival of AIDS pandemic we saw an increase of cryptococcocal meningitis among AIDS patients. Patients diagnosed is limited to Jakarta & Bandung, and in a small number from other cities such as Demak, Bali, Malara & Jayapura. We also diagnosed cryptococcosis in non HIV patients. It indicates that the problem of cryptococcosis is bigger than what has been reported

- **Histoplasmosis**: There are two more important types of histoplasmosis i.e. acute disseminated and chronic form. Disseminated histoplasmosis has started to be reported since 2012 and since 2014 we identified histoplasmosis among AIDS patients with skin dissemination. We did not have any data on the chronic form which have clinic symptoms similar to pulmonary TB. We suspect that among patient diagnosed as pulmonary TB some of them are people with histoplasmosis.

- **PCP**: PCP causes acute severe infection among patient with AIDS, but since prophylaxis were given to all newly diagnosed patient, it was difficult to get an actual number. We also diagnosed PCP among non HIV patient admitted to the EAT.

- **Other mycotic infection such as vaginitis, dermatophytoses even though important, but are not serious, life threatening infection.

Conclusions:

Over 5.3 million Indonesians probably have a fungal infection in any given year (2.05%). The estimates are almost certainly significant underestimates. Indonesia has a high burden of serious fungal infections, partly attributable to high TB incidence, moderate numbers of HIV patients, and many other risk factors. Additional efforts to improve diagnostic capability and undertake epidemiology studies are required.

References

- Rozaliyani et al. Profile of invasive aspergillosis in six hospital in Jakarta (manuscript)