



Burden of serious fungal infections in Mongolia

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Introduction

Mongolia has a geographically dispersed population across a large land-locked area in North East Asia. As no serious attempt has been made to estimate the number of serious fungal infections in Mongolia previously, we have attempted this, based on at risk population data and published rates.

Methods

A full literature search was done to identify all epidemiology papers reporting fungal infection rates from Mongolia. We used specific populations at risk and fungal infection frequencies in the population to estimate national incidence or prevalence. The statistical yearbook of Mongolia statistics of 2011; the 2011/12 HIV infection and AIDS rates from the HIV/STI Research and Surveillance Department NCCD, WHO TB statistics, 2011; COPD rates from report Prevalence and future approach for prevention and control of Respiratory Diseases; Asthma prevalence was from Vinnanen et al, Allergy, 2005.

Results

The Mongolian population is about 2.8 million with 41% under 15 years of age. Estimates are: 5% of women (age 15-50 years) get 4 episodes or more of Candida vaginitis per year, a total of 40,347 annually. HIV/AIDS population is low at an estimated 127 infected people, 64% not on ARV therapy with 19 new AIDS cases annually and 17 deaths. The rate of *Pneumocystis* pneumonia (and cryptococcal meningitis) appears be very low at 1%. There were 4,256 pulmonary TB cases (all but 5 in HIV negative people) resulting in prevalence of 590 cases of chronic pulmonary aspergillosis, using a 15% annual mortality rate, perhaps 50% of the total CPA case load, estimated at 1,181 patients. The prevalence of asthma among adults is low at 1% (weighted mean) ~16,589 people and assuming 2.5% have ABPA 415 cases would be expected, and 547 SAFS cases. COPD is common with an estimated 87,162 cases, and assuming a 7% admission rate, 6,101 admissions and 79 cases of invasive aspergillosis in COPD. Assuming a low rate of candidaemia of 5/100,000, 141 cases are anticipated and 21 cases of candida peritonitis in surgical patients, among the 24,500 abdominal surgeries annually. Tinea capitis and fungal keratitis were difficult to estimate and probably uncommon.

Table 1. Estimated burden of fungal disease in Mongolia

№	Infection	Number of infections per underlying disorder per year					Total burden	Rate /100K
		None	HIV/AIDS	Respiratory	Cancer/Tx	ICU		
1	Candidaemia	-	-	-	96	42	141	5
2	Candida peritonitis	-	-	-	-	-	21	2
3	Recurrent vaginal candidiasis (4x/year +)	40,347	-	-	-	-	40,347	2870
4	ABPA	-	-	415	-	-	415	15
5	SAFS	-	-	547	-	-	547	20
6	Chronic pulmonary aspergillosis	-	-	1,181	-	-	1,181	42
7	Invasive aspergillosis	-	-	-	87	?	87	3.1
8	Cryptococcal meningitis	?	0	-	-	-	0	0
9	<i>Pneumocystis</i> pneumonia	-	1	?	?	-	0	0.02
10	Histoplasmosis	?	?	?	-	-	?	?
11	Fungal keratitis	?	-	-	-	-	-	?
12	Tinea capitis	?	-	-	-	-	?	?
	Total burden estimated	40,347	1	2,143	184	42	41,962	

Conclusion

Serious fungal infections in Mongolia are dominated by recurrent candida vaginitis and allergic and chronic aspergillosis. These basic estimates require epidemiological studies to validate or modify the substantial burden estimates.