Chronic pulmonary aspergillosis in active pulmonary tuberculosis patients in Jakarta, Indonesia

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Background

- Pulmonary tuberculosis (PTB) is the most common underlying disease of Chronic Pulmonary Aspergillosis (CPA). These two diseases have the same clinical and radiological manifestations different management approach.
- WHO has highlighted Indonesia as the second largest TB burden in the world.
- It can be estimated that there are some 17,561 new cases CPA after PTB every year in Indonesia.
- The total estimate of CPA is ~83,000 patients. There is no single study about CPA in PTB patients in Indonesia.

Aims

- The aim of the study is to estimate the burden of CPA among active PTB in Indonesia.

Methods

- We assessed PTB patients on first 8 weeks (early) PTB therapy and the final 2 months (late) PTB therapy for CPA based on clinical symptoms, CXR results and *Aspergillus* IgG using Dynamiker ELISA (Fig 1).
- Sputum specimens were analysed by the GeneXpert MTB/RIF test to rule out active PTB as diagnosis. This is an interim analysis of a large CPA cohort study ongoing in Indonesia.
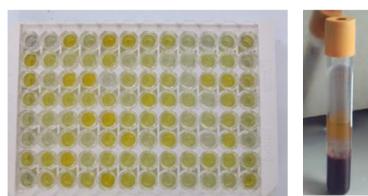

Figure 1. *Aspergillus* IgG ELISA test.

Results

Table 1. Demography of patients.

	CPA (n=10; 18%)	Non CPA (n=46; 82%)
Age	42.5 (17 - 62)	42 (19 - 78)
Male sex	5 (50%)	27 (68%)
Median Asp-IgG level	100 AU/mL (65.5 - 2137.1 AU/mL)	33.4 AU/mL (17.1 -1017.1 AU/mL)
Symptoms		
Cough	6 (60%)	11 (24%)
Hemoptysis	2 (20%)	7 (15%)
Shortness of breath	5 (50%)	2 (4%)
Fatigue	5 (50%)	3 (6%)
Night sweats	1 (10%)	3 (6%)
Fever	2 (20%)	1 (2%)
Chest pain	3 (30%)	2 (4%)
No symptoms	0 (0%)	28 (61%)
GeneXpert TB		
Medium detected	0 (0%)	4 (9%)
Low detected	1 (10%)	9 (20%)
Very low detected	1 (10%)	0 (0%)
Negative	8 (80%)	21 (46%)
No sputum	0 (0%)	12 (26%)

- Out of 56 patients, 10 patients (18%) met criteria for CPA. There were 5 CPA patients diagnosed from the early PTB therapy group and 5 from the late PTB therapy group (Tab 1).
- Cough (n=6, 60%) was the most common presenting symptom in CPA patients. This compares with the non-CPA patients who described no symptoms (n=28, 61%).
- The CXR appearances of CPA patients (Fig 2 & 3): cavities (n=10, 100%), paracavitary fibrosis (n=8, 80%) and pleural thickening (n=6, 60%).
- The median Asp-specific IgG level in CPA is 75.8 AU/ml in early PTB therapy group and 146 in late PTB therapy group is statistically significant higher than non-CPA groups (27.9 AU/ml early PTB therapy group, 37.6 AU/ml late PTB therapy group, *p*=0.004).
- There were two patients with positive *Aspergillus* IgG who didn't meet criteria of proven CPA (Fig 4) and required follow up (probable CPA).

Figure 2. CXR of a CPA patient from early PTB therapy group: multiple cavities & infiltrates in the upper left lung.

Figure 3. CXR of a CPA patient from late PTB therapy group: multiple cavities & infiltrates in upper, middle & lower of the left lung.
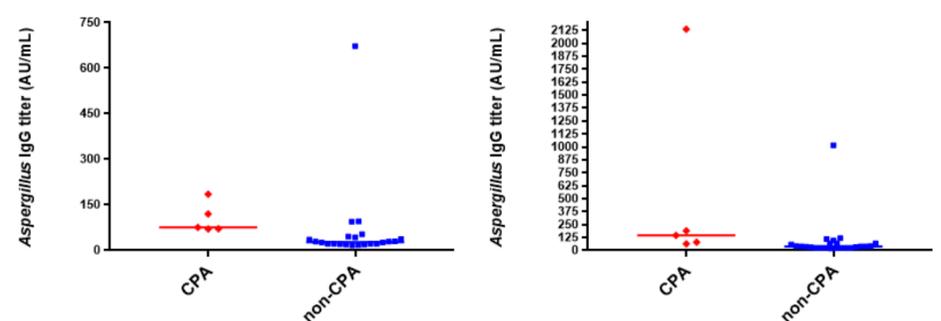

Figure 4. *Aspergillus* IgG level on early PTB therapy group (A); late PTB therapy group (B).

Conclusions

- CPA is commonly misdiagnosed as PTB in Indonesia where TB is an endemic disease. PTB patients show clinical progression after 6 months therapy unless there is other concomitant disease such as CPA.
- CPA should be considered if the clinical and radiological findings are in line with those of CPA and there is no evidence of active PTB.
- There is urgent need for research in this field to determine the true incidence and prevalence of CPA among PTB patients in Indonesia.