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Triple screening for invasive mycoses in patients with advanced HIV diseases in Vietnam

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BACKGROUND

- Invasive mycoses are second to TB as a leading cause of death in patients with **advanced HIV diseases (AHD).** The WHO recommends screening for TB and cryptococcosis in a package of care for AHD. However other invasive mycoses endemic in SE Asia - talaromycosis and histoplasmosis - are not included due to the lack of antigen diagnostics to inform policy.
- **Objective**: To investigate the prevalence of talaromycosis, histoplasmosis, cryptococcosis, TB, and non-TB mycobacteria in inpatients and outpatients with AHD to inform package of care guidelines for AHD in Vietnam.

METHODS

Figure 1. Study population and schema

- Adults with **AHD (CD4 < 100 cells/mm³ or WHO stage III/IV)**
- Not on ART, on ART ≤ 3 months, OR on ART > 12 months
- Not on effective antifungal therapy for systemic mycoses

Cohort 1: Inpatients (N = 900)

Cohort 2: **Outpatients** (N=500)

Cohort 1: Follow up monthly over 6 months

Cohort 2: Follow up monthly over 12 months

Conventional diagnostics	• Microscopy, UXpert sputum • Standard BACTEC and MGIT cultures
Intensified fungal diagnostics	• TmAg, HAg, CrAg tests • Myco/F lytic blood culture
Intensified mycobacterial diagnostics	• UXpert in blood and urine • Myco/F lytic blood culture

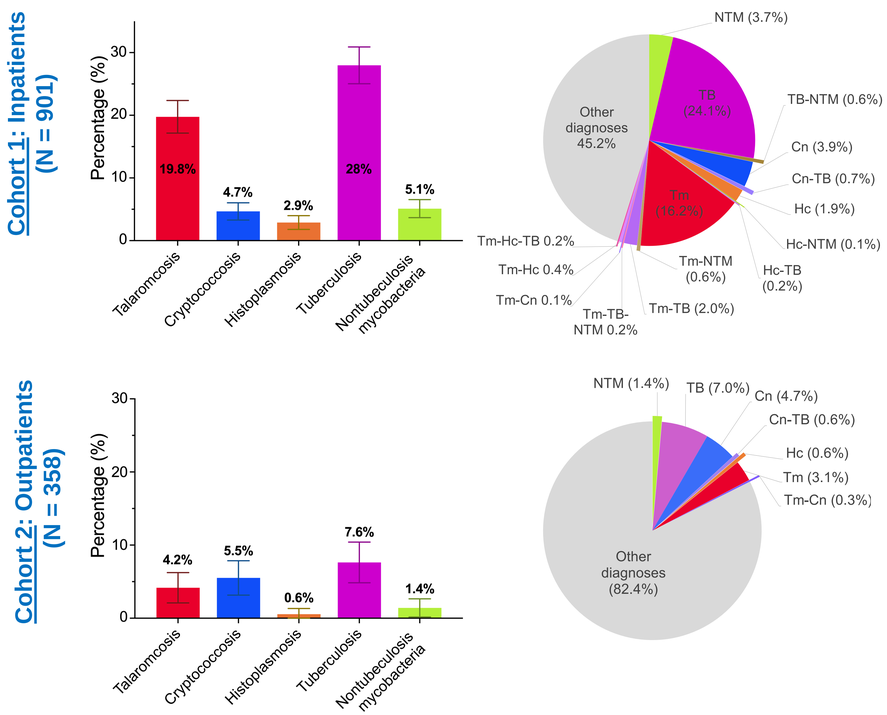
Patient management:
- CrAg+ and HAg+ patients were treated per national guidelines.
- TmAg+ patients were treated only if evidence of microscopy/histology/culture + talaromycosis
- TB and NTM were treated per national guidelines

Primary outcomes:
1. Prevalence of fungal diseases
2. Prevalence of TB and NTM
3. Mortality by OIs

- Invasive mycoses account for 27.3% of inpatients and 9.5% of outpatients with AHD in Vietnam.
- Invasive mycoses and mycobacteria infections collectively account for 54.8% of inpatients and 17.6% of outpatients with AHD.
- High mortality highlights the need for earlier fungal screening before symptomatic disease.
- Talaromycosis and histoplasmosis should be added to the WHO package of care for AHD in Southeast Asia

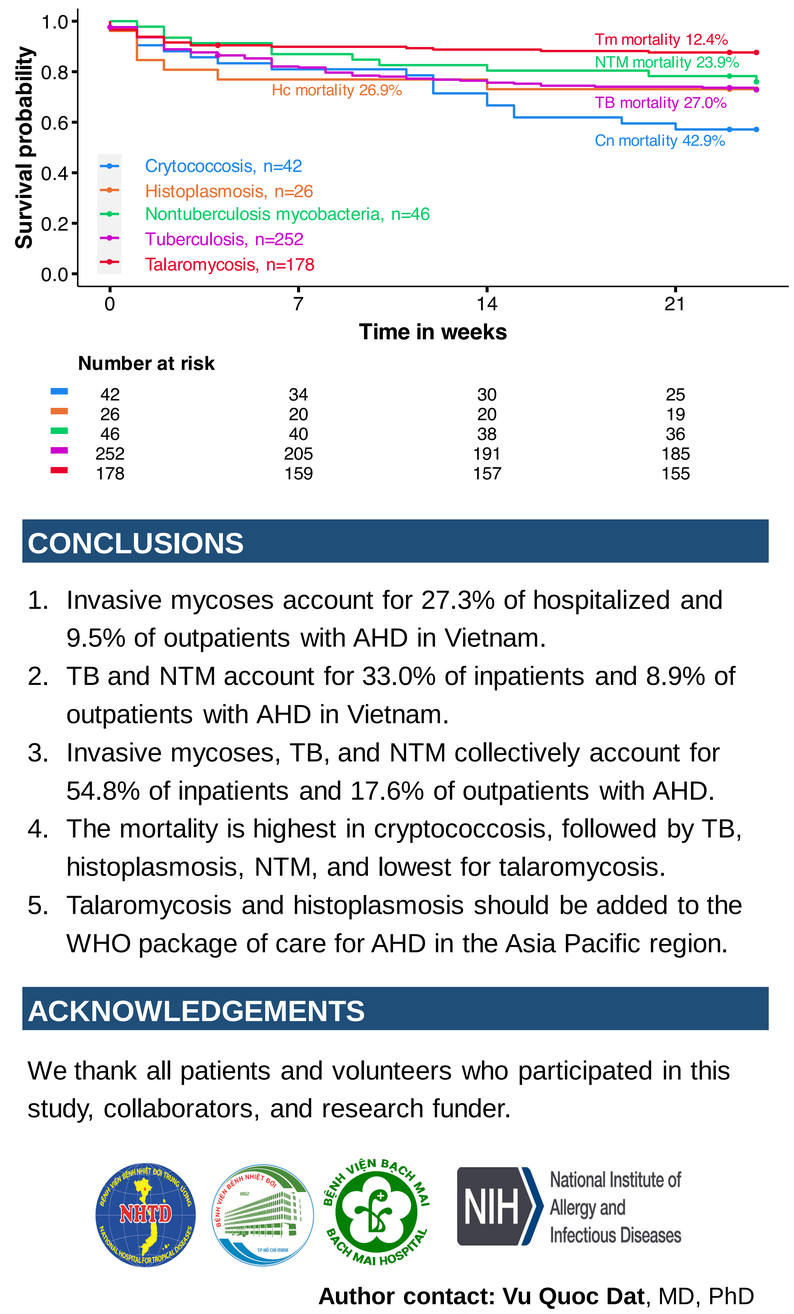
RESULTS

Figure 2. Prevalence of three mycoses and mycobacterial infections in inpatients and outpatients with ADH



Note: Tm: Talaromycosis; Cn: Cryptococcosis, Hc: Histoplasmosis, TB: Tuberculosis, NTM: non-tuberculosis mycobacteria

Figure 3. Survival estimates of mycoses, TB, and NTM



CONCLUSIONS

1. Invasive mycoses account for 27.3% of hospitalized and 9.5% of outpatients with AHD in Vietnam.
2. TB and NTM account for 33.0% of inpatients and 8.9% of outpatients with AHD in Vietnam.
3. Invasive mycoses, TB, and NTM collectively account for 54.8% of inpatients and 17.6% of outpatients with AHD.
4. The mortality is highest in cryptococcosis, followed by TB, histoplasmosis, NTM, and lowest for talaromycosis.
5. Talaromycosis and histoplasmosis should be added to the WHO package of care for AHD in the Asia Pacific region.

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