

Background: Patient with adult-onset immunodeficiency syndrome (AOID) associated with anti-interferon-gamma (IFN- γ) autoantibodies are highly susceptible to recurrent non-tuberculous mycobacteria (NTM) infections. These infections often require prolonged antibiotic therapy and incur significant treatment costs.

Methods: This retrospective cohort study at Siriraj Hospital, Thailand (January 2016 to January 2024) evaluated the cost-effectiveness of linezolid for disseminated NTM in 48 AOID patients. We compared clinical outcomes and direct medical cost-including hospitalizations, intravenous (IV) antibiotic therapy and laboratory expenses during the one-year periods before and after linezolid initiation.

Results: The mean age of participants was 52.7 years (range: 33-75), and *Mycobacterium abscessus* (72.9%) was the predominant pathogen. Following linezolid initiation, culture confirmed NTM diseases reduced from 75% to 20%, and the mean number of confirmed infections per person per year decreased from 1.23 to 0.4 ($p=0.02$). The proportion of patients requiring intravenous antibiotic decreased from 87.5% to 40%. Non-statistically significant trends toward reduction were observed in the number of IV antibiotic therapy courses (from 0.71 to 0.42), hospitalizations per patient (from 0.93 to 0.50) and mean length of stay (13.71 days to 8.69 day). Mean inpatient costs significantly decreased from 2,660 USD to 1,159 USD ($p=0.04$), and outpatient costs from 2,450 USD to 1,390 USD ($p=0.01$). Total savings reached approximately 2,187 USD per patient, even accounting for the cost of linezolid.

Conclusions: Linezolid significantly reduces healthcare costs and clinical burden by lowering NTM relapse rates and IV antibiotic requirements in AOID patients. It serves as a viable, cost-saving therapeutic option for managing disseminated NTM in this population.

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