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HIV-infected presumptive tuberculosis patients without tuberculosis: How many are eligible for antiretroviral therapy in Karnataka, India?

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Abstract For certain subgroups within people living with the human immunodeficiency virus (HIV) [active tuberculosis (TB), pregnant women, children <5 years old, and serodiscordant couples], the World Health Organization recommends antiretroviral therapy (ART) irrespective of CD4 count. Another subgroup which has received increased attention is ''HIV-infected presumptive TB patients without TB''. In this study, we assess the proportion of HIV-infected presumptive TB patients eligible for ART in Karnataka State (population 60 million), India. This was a cross-sectional analysis of data of HIV-infected presumptive TB patients diagnosed in May 2015 abstracted from national TB and HIV program records. Of 42,585 presumptive TB patients, 28,964 (68%) were tested for HIV and 2262 (8%) were HIV positive. Of the latter, 377 (17%) had active TB. Of 1885 ''presumptive TB patients without

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active TB", 1100 (58%) were already receiving ART. Of the remaining 785 who were not receiving ART, 617 (79%) were assessed for ART eligibility and of those, 548 (89%) were eligible for ART. About 90% of ''HIV-infected presumptive TB patients without TB" were eligible for ART. This evidence supports a public health approach of starting all ''HIV-infected presumptive TB patients without TB" on ART irrespective of CD4 count in line with global thinking about 'test and treat'.

1. Introduction

With an estimated 36.9 million people living with HIV (PLHIV), 2.0 million new HIV infections, and 1.2 million deaths in 2014, HIV continues to be the most common infectious cause of mortality in the world and has claimed >34 million lives so far [1]. Antiretroviral therapy (ART) is life-saving for PLHIV, and by the end of March 2015, about 15 million PLHIV were receiving ART. HIV is the only infectious disease where treatment is initiated only after it becomes clinically severe (assessed using CD4 counts). There have been various reasons for this strategy which include prioritizing toxic drugs for those with highest risk of progressing to AIDS, concerns about nonadherence, and risk of drug resistance if treatment is started too early. However, this situation is fast changing with the availability of newer and safer antiretroviral medicines and the evidence that early ART is beneficial even in asymptomatic PLHIV [2,3].

The World Health Organization (WHO) and the Joint United Nations Programme on HIV/AIDS (UNAIDS) have both embarked on an ambitious vision of ''90-90-90": to detect 90% of all HIV-infected patients in the community, treat 90% of those detected with ART, and achieve viral suppression in 90% of those treated [4]. Given this, there is an increased demand from civil society organizations and patient groups to move toward a ''test and treat" strategy. In 2013, WHO raised the threshold for ART initiation to a CD4 count $\leqslant$500 cells/μL in adults, adolescents, and children aged 5 years and above. For certain patient groups like PLHIV having active tuberculosis (TB) disease, hepatitis B virus infection with severe chronic liver disease, pregnant and breast feeding women, children aged under 5 years, and those living in a serodiscordant relationship, ART is recommended irrespective of CD4 count (akin to a ''test and treat" strategy) (Table 1) [5]. Another such subgroup which has caught global attention is ''presumptive TB patients" (previously called TB suspects and defined as people with cough for 2 weeks or more with or without other symptoms suggestive of TB), but without TB.

Several studies from sub-Saharan African countries and Asia show a high HIV prevalence among patients with presumptive TB ranging from 10% to 64%, sometimes even higher than the HIV prevalence among TB patients, prompting WHO to recommend routine HIV testing in such patients [6—14]. A prospective study from Zimbabwe showed that HIV-infected presumptive TB patients are a neglected group with only 15% getting ART, while about 85% had CD4 cell counts < 350 cells/μL and were eligible for ART at the time [4]. However, no study has systematically assessed this aspect in India.

Hence, in this study, we aim to determine the number of HIV-infected presumptive TB patients eligible for ART in a large south Indian state of Karnataka. The specific objectives were to determine among a cohort of presumptive TB patients (stratified by whether they have TB or not) attending the microscopy centers of Karnataka in May 2015: (1) number (proportion) ascertained for HIV status and found HIV positive; and (2) among HIV-infected patients, (a) number assessed for ART eligibility and found ART eligible and (b) number (proportion) initiated on ART.

2. Materials and methods

2.1. Study design

This was a cross-sectional study involving secondary analysis of data routinely recorded under the Revised National TB Control Programme (RNTCP) and National AIDS Control Programme (NACP).

2.2. Setting

India is considered a country with a concentrated HIV epidemic and contributes to about 10% of the global burden in absolute terms [1]. The HIV epidemic in India is showing a declining trend and in