

Isoniazid preventive therapy programme for HIV-infected patients in a TB endemic region with universal access to antiretroviral treatment

Special Preventive Programme, Centre for Health Protection, Department of Health, Hong Kong SAR, China

Introduction

Tuberculosis (TB) is a major cause of illness and death in people living with HIV (PLHIV) despite availability of antiretroviral treatment (ART). In Hong Kong with universal access to ART, TB remained one most important AIDS-defining condition in the HIV-infected population. This report evaluated a programme of IPT for prevention of TB in PLHIV under medical care.

Description

A healthcare provider-led programme of IPT in PLHIV, as identified by annual TST, was introduced in the largest HIV clinic in Hong Kong from Jan 2002 to February 2012. Area and indicators of evaluation using Donabedian framework including structure, process and outcome of the programme were as followed:

Table. Area and indicators for evaluation using Donabedian framework

Dimension	Area of evaluation	Indicators for evaluation
Structure	Policy of service delivery	<ul style="list-style-type: none">● Documented clinical policy● Reminder message in the computer information system● Internal audit every 3 months
	Tuberculin skin testing	<ul style="list-style-type: none">● Use of 2 tuberculin units of RT23
	Staff involved	<ul style="list-style-type: none">● Training of healthcare providers
	Data collection & information system	<ul style="list-style-type: none">● Computer information system
Process	Performing annual TST	<ul style="list-style-type: none">● Number of patients with annual TST performed
	Management of those tested TST positive	<ul style="list-style-type: none">● Exclusion of active TB disease● Engagement of patients for management
	Provision of IPT under supervision & counselling	<ul style="list-style-type: none">● Number of patients tested TST positive and provided with IPT after exclusion of TB● Number of patients completed IPT
Outcome	Prevention of TB	<ul style="list-style-type: none">● Incidence of TB

Lessons learned

Annual TST were placed to 1,552 PLHIV (67.2% were on ART) under medical care, contributing to 7055.8 patient-years of observation.

455 (29%) patients tested positive were given 9 months of IPT, with interval drug adherence counseling and support in the clinic. 339 patients (74.5%) completed IPT.

68 patients (4.4%) developed TB. The incidence of TB in the cohort was decreasing from 14.3 per 100 py in 2002-2004 to 12.6 per 100 py in 2004-2006 to 7.9 per 100 py in 2006-2008 to 6.7 per 100 py in 2008-2010 to 0.25 per 100 py in 2010-2012.

Cox Regression analysis showed that higher baseline HIV viral load >10,000 cp/ml³ (HR 8.6 p=0.03), without ART (HR 8.01 p<0.0001) and without IPT (HR 5.08 p<0.0001) were independent risk factors for developing TB.

Figure. Trend of incidence of TB in the cohort from 2002 to 2012

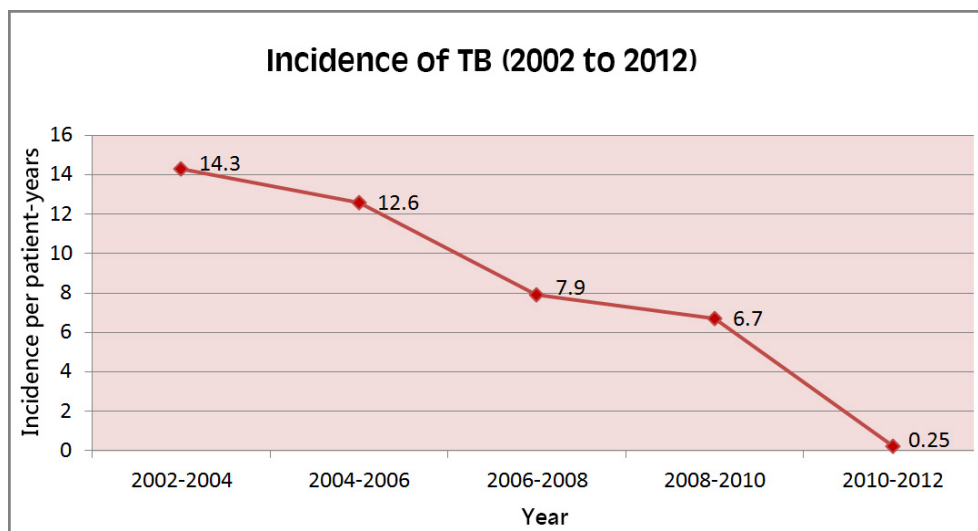


Table. Comparison between PLHIV who developed and did not develop active TB disease

	Developed TB (n=68)	No TB (n=1484)	P value (Univariate)	P value (Multivariate)	Hazard Ratio (95% CI)
Gender			0.218		
Male	61(89.7%)	1248 (84.1%)			
Body Mass Index (Mean)	21.5	22.1	0.235		
Ethnicity			0.673		
Chinese	26 (78.81%)	825 (81.7%)			
Non Chinese	7 (21.2%)	185 (18.3%)			
Risk of HIV transmission			0.068		
Heterosexual	23 (69.7%)	498 (49.3%)			
MSM	8 (24.2%)	465 (46%)			
IDU	2 (6.1%)	32 (3.2%)			
Blood transfusion	0	10 (1.0%)			
Undetermined	0	5 (0.5%)			
Age at PPD			0.407		
<=30	15 (22.1%)	306 (20.6%)			
>30 and <=40	23 (33.8%)	600 (40.4%)			
>40	30 (44.1)	578 (38.9%)			
On ART			0.001	<0.0001	
Yes	33	1010			1
No	35	474			8.01 (4.64-13.79)
On IPT			0.037	<0.0001	
Yes	8 (11.8%)	338 (22.8%)			1
No	60 (88.2%)	1146 (77.2%)			5.08 (2.37-10.89)
Baseline CD4 (Mean)	266/ul ³	308/ul ³	0.145		
Baseline HIV viral load			0.03	0.003	
<400 cp/ml ³	1 (1.5%)	117 (7.9%)			1
401-10000 cp/ml ³	9 (13.2%)	256 (17.3%)			3.13 (0.39-24.77)
>10000 cp/ml ³	58 (85.3%)	1110 (74.8%)			8.60 (1.19-62.46)
With Diabetes Mellitus	4	98	0.24		
Baseline hemoglobin level (Mean)	13.2	13.6	0.058		

Conclusion

In a TB-endemic setting with access of ART, a programme of IPT as identified by TST is feasible and effective for prevention of TB in HIV-infected patients.

Correspondence: Dr Ada LIN adalinwc@dh.gov.hk
Presented at AIDS 2014 – Melbourne, Australia