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High completion of Isoniazid Preventive Therapy among HIV-infected children and adults in Kinshasa, Democratic Republic of Congo

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Abstract

We assessed isoniazid preventive therapy (IPT) completion and predictors among HIV-infected children and adults in two HIV clinics in Kinshasa, Democratic Republic of Congo. Between September 1, 2012 and June 15, 2013, 546 children (1–15 years) and 1532 adults (> 15 years) were initiated on IPT; 86.6% (408/470) of children and 88.2% (1129/1280) of adults with an IPT outcome completed their therapy. Patients on ART at IPT initiation were more likely to complete IPT.

Keywords

isoniazid; IPT completion; HIV; TB; children; adults; DR Congo

Isoniazid preventive therapy (IPT) has been recommended for people living with HIV (PLWH) since 1998 [1]. Yet, at the end of 2013, only 21% of countries globally and 14 of 41 high burden TB/HIV countries reported provision of IPT [2]. The lack of IPT implementation has been driven among other by concerns regarding inadequate patient adherence potentially leading to isoniazid monoresistance [3]. A recent review of data from trials of IPT found that adherence rates for IPT varied widely, from 34% to 98% [4–8]. To the best of our knowledge, there has been no report on IPT compliance among PLWH receiving IPT as part of comprehensive HIV care in sub-Saharan Africa.

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The aim of this study was to assess IPT completion and factors associated with IPT completion among HIV-infected children and adults receiving it as part of their routine HIV care in two clinics (Kalembe Lembe and Bomoi) in Kinshasa, Democratic Republic of Congo (DRC). Clinical procedures in the two clinics have been reported elsewhere [9, 10].

Starting in April 2012, patients receiving care in those clinics were screened at each visit for TB symptoms. Active TB was ruled out in adults if they did not have any of current cough, night sweats, fever, and weight loss, and in children if they did not have any of poor weight gain, fever, current cough or contact history with a TB case [11]. In August 2012, the two clinics started providing IPT according to WHO guidelines to all HIV-infected patients one year or older in whom active TB was ruled out for a minimum of six months, irrespective of previous TB or antiretroviral therapy (ART) history.

The main outcome in this analysis was IPT completion. All patients recorded to have stopped taking IPT with the reason for stopping recorded as “treatment completion” were classified as having completed their treatment. If they had been on IPT for at least six months but were not recorded as “treatment completion,” they were classified as not completed. Patients in whom IPT was stopped before six months were classified as not completed, regardless of the reason for stopping.

Bivariate and multivariate logistic regression models were used to estimate crude and adjusted odds ratios (ORs) and 95% confidence intervals (95% CIs) for associations between baseline predictors and IPT completion. All analyses were done separately for children (15 years or younger at IPT initiation) and adults (over 15 years at IPT initiation). All analyses were performed using SAS 9.3 (Cary, NC).

Between September 1, 2012 and June 15, 2013, 3053 PLWH receiving care in the two clinics had at least one clinic visit. Of those, 2366 were not symptomatic, and 2078 (87.8%) were initiated on IPT. This included 546 children (26.3%) and 1532 adults (73.7%) (Figure 1, supplemental material).

Among the 546 children initiated on IPT, the median age was 8.0 years [interquartile range (IQR): 4.6, 11.2]. They had been in care for a median of 39.3 months (IQR: 4.6, 11.2), and over 90% (n=494) were on ART (Table 1). Overall, 470 (86.1%) had an IPT outcome (termination date and reason recorded: n=431) or had been on treatment for more than six months (n=39). Of those, 408 (86.8%) completed their IPT. Children on ART at IPT initiation were more likely to complete IPT: adjusted OR, 1.70 (95% CI: 0.75, 3.85) (Table 2, supplemental material).

Among the 1532 adults (73.7%) initiated on IPT, the median age was 35.1 (IQR: 29.7, 39.8) years. They had been in care for a median of 30.5 months (IQR: 15.8, 50.1), and 1218 (79.5%) were on ART (Table 1). Overall, 1280 (83.6%) had an IPT outcome (termination date and reason recorded: n=1188) or had been on treatment for more than six months (n=92). Of those 1280, 1129 (88.2%) completed their IPT. Participants on ART at IPT initiation were more likely to complete IPT than those who were not (89.2% vs 83.3%; adjusted OR, 1.54 (95% CI: 1.02, 2.32)). Higher age at IPT initiation was also associated

with IPT completion (adjusted OR, 1.02 (95% CI: 1.00, 1.04) for each year increase in age (Table 2, supplemental material).

This is the first report on IPT completion among PLWH who received IPT during routine care in sub-Saharan Africa. Our results showed that among both children and adults, the proportion of patients who completed six months of IPT was high (>85%). This is a conservative estimate given that every participant with over six months of IPT without a stop date or reason recorded was treated as a failure to complete.

Our observed high proportion of PLWH who completed six months of IPT is the same as that observed in a TB vaccine trial in Tanzania (87%) [12] and in public primary HIV clinics in Brazil (85%) [13]. A small study of IPT among pregnant women in Lesotho reported a lower proportion of IPT completion (64.5%) [14], probably due the high postpartum dropout that has been well documented among HIV-infected pregnant women [15].

Adherence to TB preventive therapy among HIV-infected children has also been shown to be very good: 75.8% in a prospective study of ofloxacin, ethambutol, and high-dose isoniazid in South Africa [16] or 78.6% in a randomized trial comparing daily to thrice weekly dosing of isoniazid in South Africa [17].

This study has some limitations. This is a retrospective analysis and detailed information was not always available. For example, the types and severities of reported toxicities were not recorded. Over 8% of children and 7% of adults initiated on IPT for more than six months lacked information in the database on whether they were still taking the treatment. Part of this might be explained by the gap between the visit to the clinic and data entry, but we have conservatively classified those patients as non-completers.

In conclusion, in our cohort of HIV-infected children and adults receiving IPT as part of their routine HIV care and treatment, the proportion of patients completing the six-month regimen was relatively high, and being on ART at IPT initiation was the strongest predictor of completion.

Supplementary Material

Refer to Web version on PubMed Central for supplementary material.

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Table 1

Characteristics of 546 children and 1532 adults infected with HIV who initiated IPT between September 1, 2012 and June 15, 2013 in two clinics in Kinshasa, DRC.

	<u>1–15 years old (Children)</u>		<u>> 15 years (Adults)</u>	
	N	%	N	%
Male	274	50.2	282	18.4
Female	272	49.8	1250	81.6
On ART				
Yes	494	90.5	1218	79.5
No	52	9.5	314	20.5
IPT stopped				
Yes	470	86.1	1280	83.6
No	318	58.2	252	16.5
IPT stop reasons				
Toxicity	10	2.1	15	1.0
Patient preference/adherence/LTFU	11	2.3	33	2.2
Treatment completed	408	86.8	1129	73.7
Death	1	0.2	8	0.52
Active TB	1	0.2	3	0.2
Missing and > 6months of IPT	39	8.3	92	7.2
Median months in care (IQR)	546	39.3 (4.6, 11.2)	1532	30.5 (15.8, 50.1)
Median age in years (IQR)	546	8.0 (4.6, 11.2)	1532	35.1 (29.7, 39.8)

IPT = Isoniazid preventive therapy; DRC = Democratic Republic of Congo; ART = Antiretroviral therapy; LTFU = Loss to follow-up; IQR = interquartile range.