

EFFECTIVENESS OF ISONIAZID PREVENTIVE THERAPY ON INCIDENCE OF TB IN ADULT PEOPLE LIVING WITH HIV/RWANDA

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FACULTY DISCLOSURE

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Conflict of interest :	None
Employer :	University of Rwanda
Sponsorship :	University of Rwanda trough Swedish International Development Cooperation Agency (SIDA)

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Conflict of interest :	None
Employer :	University of Zambia
Sponsorship :	None

Faculty :	Dr Soka Nyirenda MPH,MD
Conflict of interest :	None
Employer :	Univerity Teaching Hospital Zambia
Sponsorship :	None

SESSION GOAL

- The presentation aims to share the key findings of the study done on the use of Isoniazid preventive Therapy in People Living with HIV (PLHIV)

SESSION OBJECTIVES

- *At the end of this session, participants will be able to:*
- Identify the incidence of Tuberculosis (TB) in PLHIV who took Isoniazid Preventive Therapy (IPT).
- Identify the incidence of TB in PLHIV who did not take IPT.
- Outline factors associated with TB in PLHIV on IPT
- Identify the time of TB occurrence in PLHIV who took IPT and in those who did not.

BACKGROUND

- Tuberculosis (TB) is a common complication and leading cause of death in people living with HIV infection (Granich,2010).
- In Rwanda, TB is the main opportunistic infection and it is the leading cause of death in HIV infected patients (Rwanda Biomedical Center, 2012).
- Isoniazid Preventive Therapy (IPT) reduces tuberculosis incidence, but is not widely used (Golub,2009).

PROBLEM STATEMENT

- Since the start of IPT in 2011, no research has been done to evaluate its effectiveness.
- Hence, the public health importance of IPT in Rwanda is not known, as such it is empirically not possible to ascertain the extent to which IPT prevent TB among PLHIV

SIGNIFICANCE

- To contribute to the knowledge of IPT effectiveness in PLHIV in Rwanda
- To support the already instituted initiatives in Rwanda aimed at improving management of HIV patients.
- To guide national HIV and TB programmes to roll out the IPT programme in the whole country.
- To provide information to generate further researches

STUDY OBJECTIVES

- **Main objective**
- To evaluate the effectiveness of primary Isoniazid Preventive Therapy (IPT) on the incidence of active Tuberculosis (TB), in adult People Living with Human Immunodeficiency Virus (PLHIV) in selected districts of Rwanda.

STUDY OBJECTIVES cont...

- **Specific objectives**
- (1) To compare the incidence of active TB among adult PLHIV who took Isoniazid Preventive Therapy with those who did not take Isoniazid Preventive Therapy.
- (2) To identify the socio-demographic and clinical factors contributing to active tuberculosis in PLHIV on Isoniazid Preventive Therapy.
- (3) To compare the time of tuberculosis occurrence among PLHIV who took Isoniazid Preventive Therapy with those who did not.

METHODS:

- A retrospective cohort study design
- Medical records of PLHIV from six health facilities in three districts of Rwanda.
- Three are exclusively in a pilot programme providing Isoniazid Preventive Therapy in the whole country and other three are not.

METHODS cont...

- The period of study extended between 1st August, 2013 and 31st January, 2014.
- Out of 2172 PLHIV followed backward, 1,086 were on Isoniazid Preventive Therapy and 1,086 were not.
- Survival analysis and Poisson regression using SPSS version 20.0 were used to compare the rates of TB and factors contributing to it in PLHIV on IPT with PLHIV not on IPT.

RESULTS cont...

Table 1: The overall tuberculosis Incidence Rate and Incidence Rate Ratio, calculated using Poisson regression (n=2172)

IPT	Status	Person- years	TB cases	IR (per 100PY) 95% CI	RR 95% CI	P- value
	Yes	2499.08	14	0.56(0.26-0.67)	0.273	<0.001
	No	2548.74	52	2.04(1.61-2.72)	(0.152-0.49)	<0.001
	Total	5047.82	66	1.31(0.98-1.44)		<0.001

Source: Results of the present study

RESULTS cont...

Table 2: Uni-variable and Multi- variables Cox proportional hazards model for all HIV-infected patients with clinical factors (n=2172)

Variables		Unadjusted HR (95%CI ^b)	<i>P</i> value	Adjusted other variables (95%CI)	for all <i>P</i> value HR
IPT	Yes	0.261	<0.001	0.19 (0.102-0.52)	<0.001
	No	(0.14-0.48)			
ART	Yes	0.088	<0.001	0.064 (0.034-0.106)	<0.001
	No	(0.42-0.11)			
CD4	< 350	3.93	<0.001	3.302 (1.84-5.90)	<0.001
	>= 350	(2.39-6.644)			
Clinical stage	1 and 2	7.659	<0.001	5.10 (2.88-9.28)	<0.001
	3 and 4	(4.61-12.7)			
Previous TB	Yes	0.562	<0.001	0.42(0.364-1.23)	0.092
	No	(0.13-2.29)			

Source: Results of the present study

RESULTS cont...

Table 3: Univariable and Multi-variable Cox proportional hazards model excluding Isoniazid incompleters (n=2150)

Variables		Unadjusted HR (95%CI)	<i>P</i> value	Adjusted (95%CI)	HR <i>P</i> value
IPT	Yes	0.175(0.14-0.48)	<0.001	0.125(0.05-0.23)	<0.001
	No				
ART	Yes	0.088(0.42-0.11)	<0.001	0.086(0.046-0.16)	<0.001
	No				
CD4	< 350	3.93(2.39-6.644)	<0.001	3.202 (1.77-5.94)	<0.001
	>= 350				
Clinical stage	2 and 3 3 and 4	7.659(4.61-12.7)	<0.001	5.6 (3.04-10.48)	<0.001

Source: Results of this study

RESULTS CONT...

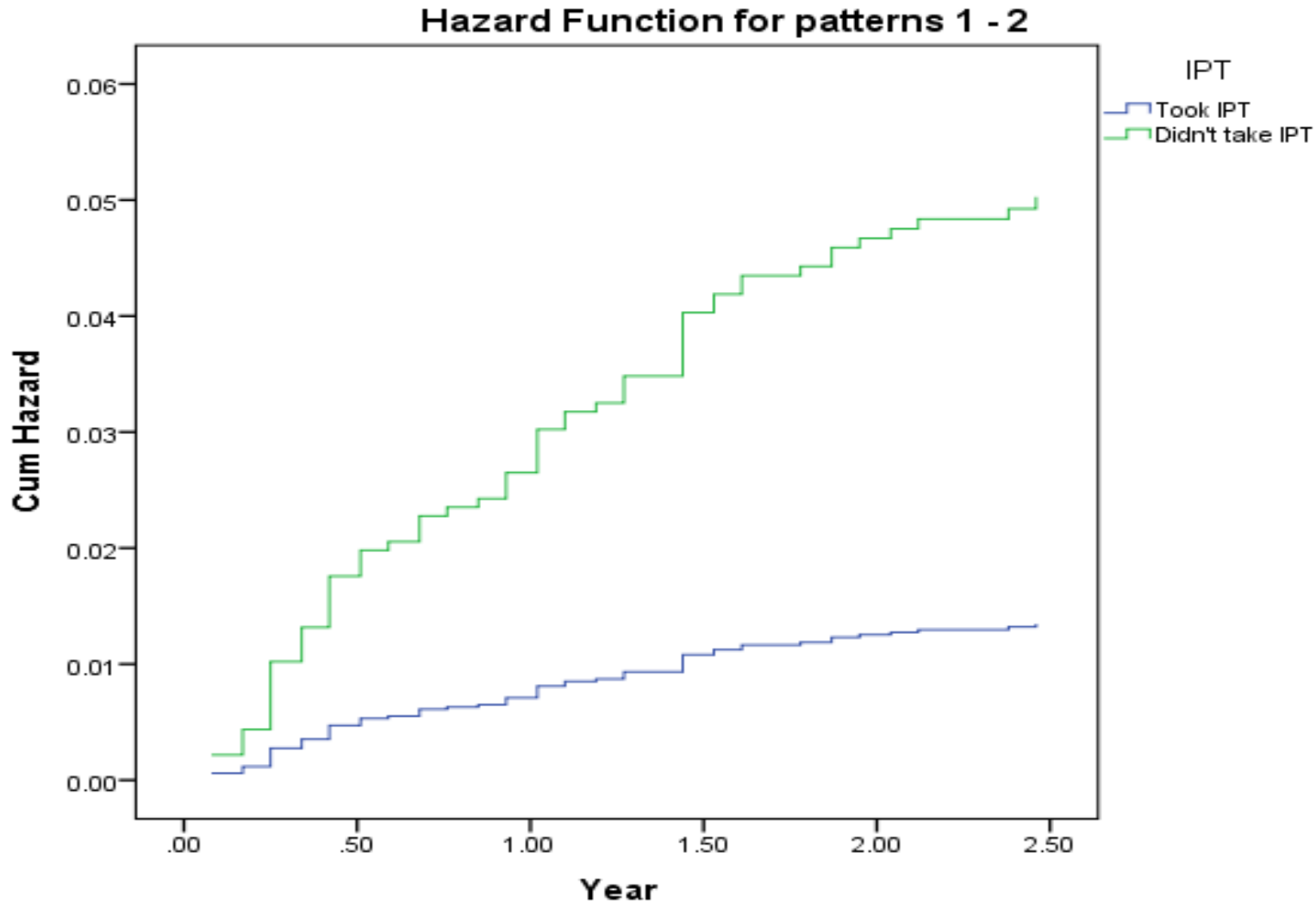
Table 4: Restricted uni-variable and Multi-variables Cox proportional hazards model, after controlling other factors

Variables	Unadjusted 95%CI	HR P value	Adjusted 95%CI	HR P value
ART (n= 1960)				
IPT	0.393 (0.174-0.887)	0.025	0.283 (0.106-0.759)	0.012
CD4	3.703	<0.001	3.034 (1.412-6.519)	0.004
Clinical stage	6.033(2.88-12.6)	<0.001	5.33 (2.42-11.72)	0.002
CD4 cell account <350 (n=765)				
IPT	0.137 (0.11-0.48)	<0.001	0.098 (0.038-0.249)	<0.001
clinical stage 3 and 4 (n=435)				
IPT	0.137 (0.11-0.48)	<0.001	0.098 (0.038-0.249)	<0.001

Source: Results of this study

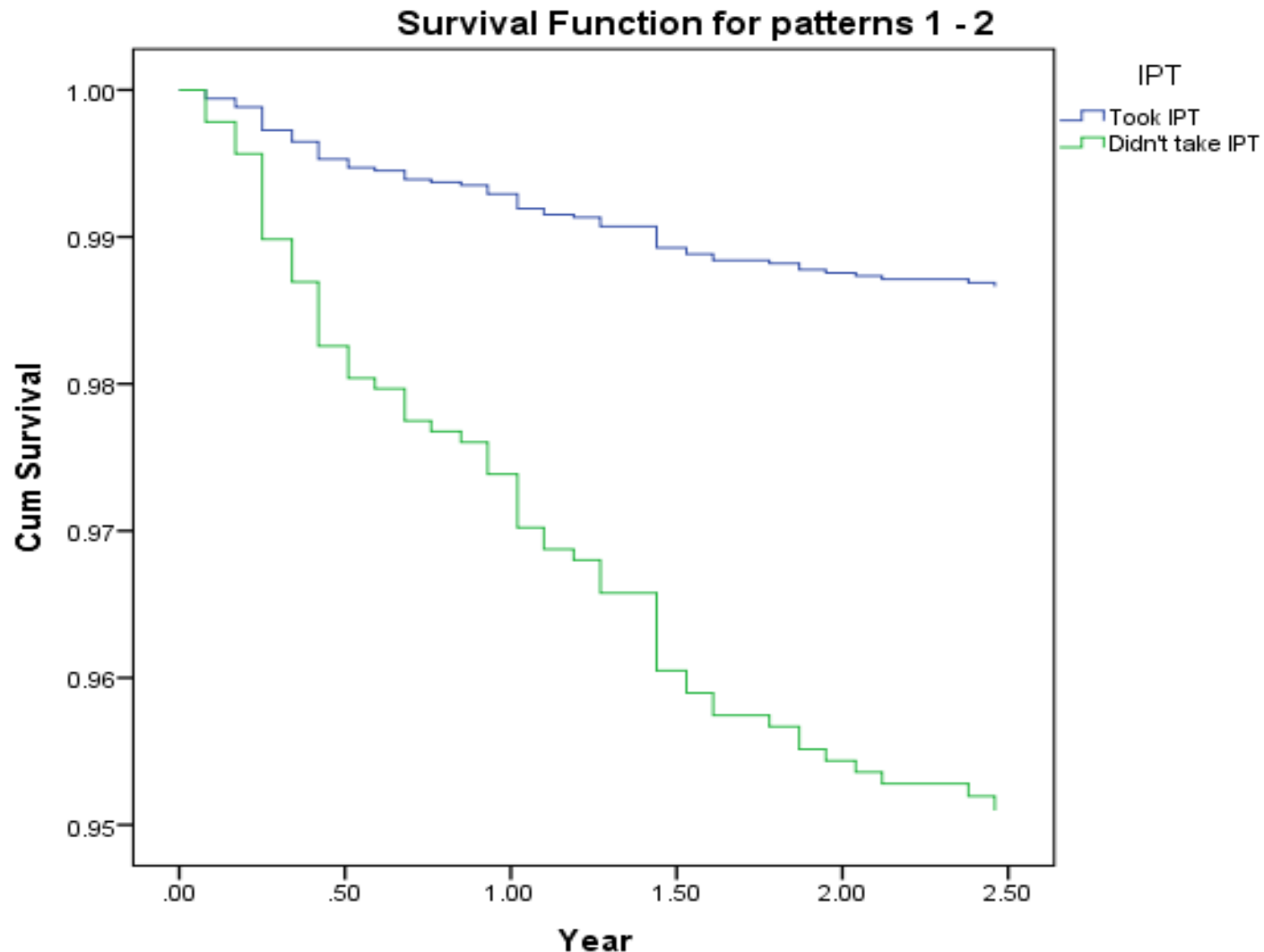
RESULTS cont...

Figure 1: A piloted hazard risk and survival function of TB among all IPT exposed and IPT NE, by Kaplan-Meier (n=2172)



RESULTS cont...

Figure 2: A piloted hazard risk and survival function of TB among all IPT exposed and IPT NE, by Kaplan-Meier (n=2172)



CONCLUSION

- In the present study, IPT was effective
- ART, CD4 cell count, WHO clinical stage, and income determined the TB incidence are .
- Age, sex, marital status, residence, education and previous TB were not associated with TB.
- The protective effect of IPT seemed to be gradually lost over time and it did not decline as rapidly as it has been reported in patients not on IPT.

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