Use of Rifabutin in the treatment of tuberculosis in HIV positive individuals

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Background

Tuberculosis (TB) treatment in HIV positive individuals is complicated by drug – drug interactions occurring between components of Highly Active Antiretroviral Therapy (HAART) and anti-tuberculosis agents[1]. This is especially common between protease inhibitors (PI's) and the rifamycins[2].

Rifabutin, a rifamycin family member, has fewer drug – drug interactions than rifampicin[3]. It has been shown to be effective in treating tuberculosis in HIV negative individuals, however, there is little data on its use in HIV patients who are on HAART[4].

Therefore, we aimed to investigate outcomes of the treatment of patients with TB in HIV co-infection with rifabutin.

Characteristic	Descriptive	Rifabutin	Rifampicin
Age	Median (Range)	43 (24 – 74)	43 (32 - 72)
Sex	M:F (%)	18 : 7 (72/28)	45:31 (59/41)
Ethnicity			
	White (%)	11 (44)	19 (25)
	Black (%)	9 (36)	51 (67)
	Asian (%)	3 (12)	3 (4)
	SE Asian (%)	1 (4)	-
	S. American (%)	1 (4)	3 (4)
Risk Category			
	Heterosexual (%)	9 (36)	51 (67)
	Homosexual (%)	12 (48)	14 (18)
	IVDU (%)	1 (4)	9 (10)
	Bi-Sexual (%)	-	1 (1)
	Blood Products (%)	-	1 (1)
	Mother – Child (%)	1 (4)	
	Unknown (%)	2 (8)	1 (1)
Time between HIV & TB diagnosis	Median (Range) Months	73 (1 – 251)	10 (-1 - 272)
Previous TB	N = (%)	2 (8)	10 (13)
TB Site			
	Pulmonary (%)	17 (68)	41 (54)
	Extra–Pulmonary (%)	6 (24)	22 (29)
	Disseminated (%)	2 (8)	13 (17)
Drug Resistance	Tested (%)	21 (84)	62 (82)
	Multidrug Resistance (%)	-	1 (4)
	Single Drug Resistance (%)	1 (4)	2 (8)

Table 1: Rifabutin & Rifampicin patient summaries

Abbreviations: HIV = human immunodeficiency virus; TB = tuberculosis; SE = south east; S = south; IVDU = intravenous drug user; CNS = central nervous system

Method

We used a prospective HIV/TB patient database to collect information and laboratory parameters for HIV innfected patients who had been given rifabutin based regimes. For controls we collected data for HIV positive individuals, matched for age and site of disease, who had been treated with rifampicin based regimes in the same time period.

To determine treatment success we collected information on:

- HIV response
- Treatment interruption due to side effects
- Long term treatment success data on relapse and mortality for the following 2 years post finishing TB treatment

Results

- From April 1999 to August 2011 25 HIV positive patients started rifabutin based TB treatment.
- The control cohort from this time period consisted of 76 patients
- Median age was 43 years for both cohorts
- 80% (n=20) of rifabutin patients were on a PI based HAART (with rifabutin dose modification to 150mg 3x a week).
- 84% of rifabutin & 87% of rifampicin patients completed TB treatment
- In the 2 year follow up 4% of patients in both cohorts experienced TB recurrence. Treatment was interrupted due to adverse effects in 16% rifabutin and 28% of controls. Median CD4 and plasma viral load responses at the end TB treatment did not differ statistically

	Descriptive	Rifabutin	Rifampicin	P-Value
Completed TB Treatment	Number (%)	21 (84)	66 (87)	*0.968*
CD4 Response	Median (Range)	73 (-346 – 867)	66 (-411 – 637)	*0.642*
pVL Response	Mean Response	-100486	-75830	*0.588*
Side effects	Overall (%)	4 (16)	22 (28)	*0.445*
	Skin (%)	-	3 (3)	
	Liver (%)	-	5 (7)	
	Other (%)	4 (16)	14 (18)	
2 Year Follow up	TB Recurrence (%)	1 (4)	3 (4)	*0.930*

Table 1: Summary of outcomes assessed

Abbreviations: TB = tuberculosis; pVL = plasma viral load

Conclusion

Rifabutin appears to have similar effectiveness in the treatment of tuberculosis in people living with HIV when comparing 2 year outcomes with rifampicin treated individuals. It also appears that rifabutin patients have fewer interruptions of treatment due to skin and liver side effects.

Acknowledgements & References

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