

Cost Effective Approach for Treating HIV Patients

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In HIV infectious disease, anti-retroviral drugs have to be taken for a long duration. Prescribing costly antiretroviral drugs to patient increases the expenditure during treatment. This can be solved by prescribing the drugs with low cost or generic products. In India 136 different brands of Anti-retroviral drugs are available. Out of this 40 brands are available in combination and remaining 96 brands exist as individual drugs. In the present study we have analyzed the difference in the cost of different brands of individual Anti-retroviral drugs which will help the physician to prescribe cheaper brands. The cost ratio of individual drugs varies from 1.01 to 5.68.

Keywords: AIDS, Branded Anti Retroviral Drugs, Cost ratio

INTRODUCTION

Human Immunodeficiency Virus (HIV) is a retrovirus that causes irreversible destruction of the immune system, leading to the occurrence of opportunistic infections and malignancies. During the last decade, even though attempts were being made to eradicate HIV, it was found that eradication of HIV is highly unlikely, and effective antiretroviral therapy is required on a long-term basis to maintain viral suppression and reduce disease progression¹. Each day 11 000 persons become newly infected with the virus; of these, half are women and 40% are young people (15–24 years old). The latest statistics on the world epidemic of AIDS & HIV were published by UNAIDS/WHO in November 2007^{2,3}.

In India around 2.5 million people were living with HIV as per the survey in July 2007. In HIV-1-infected patients, highly active antiretroviral therapies (HAART) have been used both to reduce viral load in plasma to undetectable levels, and to increase the number of CD4 cells in the majority of infected individuals⁴.

Currently used anti HIV drugs can be classified under three categories: Nucleoside reverse transcriptase inhibitors, Non-nucleoside reverse transcriptase inhibitors and Protease inhibitors. The current strategy for the treatment of HIV infection is called highly active antiretroviral therapy (HAART) and is based on cocktails of drugs that are currently approved by the Food and Drug

Administration. Drugs are prescribed individually and also in 5 different combinations.

Type I: 2 NonNucleoside + 1 Nucleoside reverse transcriptase inhibitors

Type II: 1 NonNucleoside + 2 Nucleoside reverse transcriptase inhibitors

Type III: 2 Nucleoside reverse transcriptase inhibitors

Type IV: 2 Nucleoside + 1 NonNucleoside reverse transcriptase inhibitors

Type V: 2 Protease inhibitors

METHODOLOGY

The information regarding the prescription pattern and price among the different brands of the Anti-retroviral drugs were evaluated using Advance Drug review⁵ and current index of medical specialties⁶. The cost of 10 tablet or capsules of each brand was calculated. The cost range and cost ratio was calculated (Lal A, Sharma ML). Table I, II & III shows Nucleoside/nucleotide reverse transcriptase inhibitors (NRTI), Non –nucleoside reverse transcriptase inhibitors (NNRTI) and Protease inhibitors (PIs) available in the market. Cost ratio was calculated using the formula

Cost ratio = (highest price / lowest price)

RESULTS AND DISCUSSION

Little is known about the long term drug costs associated with treating AIDS in developing countries⁷. Potent antiretroviral drugs can significantly improve the clinical course of HIV infection, but its use has been very limited due to its cost⁸. The high costs and price variation between branded antiretroviral drugs

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relative to India per capita income was a major reason for the limited access to treatment⁹.

Table I: Nucleoside/Nucleotide Reverse Transcriptase Inhibitors (NRTI)

Generic Name	Brand Name	Price (Rs)	Cost Ratio	Cost Range
Abacavir (300 mg tablets)	Abavir	2166.75	2.765	783.5-2166.75
	Virol	783.5		
Lamivudine (100 mg tablets)	Heptavir	120.00	5.681	88- 500
	Hvir	117		
	Lamda	117.50		
	Lami	145		
	Lamivox	155		
	Lamivir	88		
	Lamurvid	500		
	Retrolam15	95		
	Sharvudin	137		
	Virolam	91		
Stavudine (40 mg capsules)	Stag	50.70	2.432	37- 90
	Stavex	90		
	Stavir	37		
	Virostan	43		
Generic Name	Brand Name	Price (Rs)	Cost Ratio	Cost Range
Zidovudine (300 mg tablets)	Retrovir	600	3.92	153-600
	Viro-Z	162		
	Ziddvir	205		
	Zido-H	180		
	Zidomax	153		
	Zidovex	230		
	Zidovir	161.50		
	ZVD	240		
	Zillion	215		
	Zydowin	230		

Table II: Non –Nucleoside Reverse Transcriptase Inhibitors (NNRTI)

Generic Name	Brand Name	Price (Rs)	Cost Ratio	Cost Range
Nevirapine (200 mg tablets)	Neve	195.80	1.450	135 – 195.80
	Nevimune	147		
	Nevipan	170		
	Nevir	158		
	Neviretro	135		
Efavirenz (600 mg capsules)	Effervan	741	1.278	735- 940
	Efavir	735		
	Estiva	940		

Table III: Protease Inhibitors (PIs)

Table III: Generic Name	Brand Name	Price (Rs)	Cost Ratio	Cost Range
Indinavir (400 mg capsules)	I-vir	345	1.63	233-380
	IND	290		
	Indivir	380		
	Virodin	250		
	Indivan-400	233		
Nelfinavir (250 mg Tablets)	Neivex	400	1.66	240-400
	Nel	325		
	Nelfin	270		
	Nelvir	240		
Ritonavir (100 mg capsules)	Ritomune	412.50	1.0153	406.25-412.5
	Ritovir	406.25		

Different brands of anti-retroviral drugs are available in the market. The cost range of drugs varies widely. For example the cost ratio of Lamivudine was 5.68. This indicates that the costliest brand of Lamivudine is 5.68 times more expensive than their cheapest brand. If Lamivudine is to be taken twice a day, for 30 days, the cost ranges from Rs.528 to Rs.3000. If the physician prescribes the costliest brand of Lamivudine the patient has to spend Rs.2472 more every month. Thus physicians should be familiar with the cost of antiretroviral drugs during prescription. This can be educated through continuous medical education programs for physician and pharmacists. The cost effective treatment is also possible through doctors prescribing the drugs in consultation with the pharmacist in the hospital.

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