Nutritional status of HIV infected respondents in West Java, Indonesia

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Introduction:
Indonesia, having a population of around 250 million inhabitants, is one of the fastest growing HIV epidemics in Asia. West-Java with a population of 45 million people contributes about 1/3 to the growing epidemic. Immune reconstitution on Anti Retroviral Treatment (ART) is associated with an optimal Body Mass Index (BMI). The aim of this study is to describe the nutritional status among HIV infected respondents in West Java and determine the association between time in ARV treatment with BMI.

Methods:
Data was collected consecutively from January to June 2012. There were 281 respondents in Bandung, West Java, consisted of 144 patients from HIV Clinic, 39 patients from Methadone Clinic, and 98 People Who Inject Drugs (PWID) in community.

Results:
All respondents in HIV and methadone clinic and 83% of PWID in community were HIV positive. One third of them were underweight, eight percent at risk, nine percent obese type 1 and one percent obese type 2 and there were no significant differences between these three groups ($p = 0.42$). The mean of BMI in those who had received ART was 20.5 (± 3.0) and those who had not 21.3 (± 3.8). The length in ART had no statistically significant correlation with higher BMI.

Conclusion:
Nutritional problems in HIV infected respondents in West Java was still high and need to be addressed in the HIV intervention program.

Key words: body mass index, HIV, Indonesia

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Introduction

In 2007, of the estimated 15.9 million injecting drug users (IDUs) worldwide, probably 3 million were infected with HIV (Strathdee et al., 2010). Injecting drug use is also estimated to account for 30% of new HIV infections outside sub-Saharan Africa (UNAIDS, 2006).

People living with HIV/AIDS (PLWHA) usually suffer from high levels of physical and psychological problems (Ngowi et al., 2008, Starace et al., 2002, Gannon et al., 2011). Physical problems include the opportunistic infections such as diarrhea, tuberculosis, skin problems, toxoplasmosis, etc.

The psychological problems increase by stigma and discrimination. PWLHA are stigmatized and looked at negatively by people at large because they were associated with sex workers, men who have sex with men, and injecting drug users (IDUs). Stigma and discrimination lead to more stressful life which even can be worse than having the disease itself (Ahsan Ullah, 2011). Psychological distress may be an important contributor to HIV progression (Ironson and Hayward, 2008). Some studies have demonstrated that high levels of psychological distress can be associated with decreases in CD4 count, increases in viral load, and faster progression to AIDS (Golub et al., 2003, Ironson et al., 2005a, Ironson et al., 2005b, Weaver et al., 2005).

The conditions of PWLHA are influenced by the use of antiretroviral treatment (ART). Many ART agents of the nucleoside reverse transcriptase inhibitor (NRTI) or protease inhibitor (PI) class are associated with mitochondrial toxicity and, therefore, can disrupt muscle structure and function.

Vitamin and mineral deficiencies may occur at a time when a person actually has increased nutritional needs because of infections, viral replication and poor nutrient absorption. The whole body develops reduced immune functioning and increased susceptibility to opportunistic infections. HIV can cause or worsen under nutrition by making the person feel poorly and want to reduce their food intake at the same time as their body has increased energy requirements in an attempt to fight the infection. The disease itself may make the absorption of energy and other nutrients less efficient. Under nutrition in turn further weakens the immune system, increasing the risk of infection and worsening the disease's impact. All of these factors can influence the Body Mass Index (BMI)—a factor that varies markedly with both the severity of HIV disease and its treatment.(Lance O. Bauer et al., 2011).

Improving and maintaining good nutrition may prolong health and delay the progression of HIV to AIDS. Because the impact of proper nutrition begins early in the course of HIV infection, even before other symptoms are observed, as a Health Extension Practitioner you will have an opportunity to make a real impact on the lives of PWLHA

Nutrition care and support helps PWLHA maintain and improve their nutritional status, improve their immune response, manage the frequency and severity of symptoms, and improve their response to ART and other medical treatment.

Indonesia, having a population of around 250 million inhabitants, is one of the fastest growing HIV epidemics in Asia. West-Java with a population of 45 million people contributes

about 1/3 to the growing epidemic. In Indonesia, HIV is prevalent only for a few decades (Pisani et al., 2003). However, the HIV epidemic in Indonesia is among the fastest growing in Asia (2009). The epidemic, except for Papua, is driven mainly by injecting drug use (IDU) (2009). Substance abuse problems make the overall problems more complex and lead to more stigmatization to PLWHA (Wisaksana et al., 2010). The aim of this study is to describe the nutritional status among HIV infected respondents in West Java and determine the association between time in ARV treatment with BMI.

Methods

Data was collected consecutively from January to June 2012. There were 281 respondents in Bandung, West Java, consisted of 144 patients from HIV Clinic, 39 patients from Methadone Clinic, and 98 People Who Inject Drugs (PWID) in community.

Patients from HIV Clinic with and without a history of IDU, who are at risk for HIV infection or who present with signs and symptoms suggesting HIV/AIDS are counseled and tested for HIV. Patients from methadone were recruited from a hospital-based MMT program in Bandung, the capital of West-Java and epicenter of the epidemic of injecting drug abuse in Indonesia. All HIV testing is voluntary and informed consent is obtained from all study participants. HIV positive patients are characterized and followed prospectively in a cohort study, which has been approved by the Health Research Ethics Committee at the Faculty of Medicine of Padjadjaran University/Dr. Hasan Sadikin General Hospital in Bandung, Indonesia.

The nutrition status was measured by BMI. Data on demographic factors, history of IDU, co-morbidity, self-reported tuberculosis treatment, and history of antiretroviral treatment (ART) are collected through interview with standard questionnaires. Laboratory examinations include

CD4 cell measurement at baseline and fixed time points afterwards. Patients are seen by a doctor every 3 to 6 months if not on ART, and more frequently when ART is initiated. At the time of this study, ART was indicated in Indonesia for patients presenting with WHO clinical stage IV or a CD4 cell count 200 cells/ml in accordance with WHO guidelines from 2006. Since 2004, ART can be accessed free of charge in Indonesia. PWID from community were recruited by outreach staffs from NGOs which working with this population ((Perhimpunan Keluarga Berencana Indonesia (PKBI) and Rumah Cemara)).

Data analysis and statistics

Descriptive data are presented in terms of percentage, mean, and standard deviation. The differences between HIV patients, methadone patients and PWID in the community were analyzed using Pearson Chi–Square for dichotomous data and Kruskal Wallis or Mann-Whitney test for continuous data. All tests were two-sided, with a P-value of 0.05 or less considered to indicate statistical significance. Analyses were performed with the use of SPSS, version 15.

Results and Discussion

All respondents in HIV and methadone clinic and 83% of PWID in community were HIV positive. One third of them were underweight, eight percent at risk, nine percent obese type 1 and one percent obese type 2 and there were no significant differences between these three groups ($p = 0.42$). The mean of BMI in those who had received ART was 20.5 (± 3.0) and those who had not 21.3 (± 3.8). The length in ART had no statistically significant correlation with higher BMI.

Table 1 showed that HIV patients from PWID in community group were younger compared to HIV patients from HIV Clinic and Methadone Clinic. PWID in MMT were older

than those recruited from the West Java community but they were younger compared to patients in other methadone clinics in Australia, Canada, China, Iran, Israel, Netherland, Poland, Thailand, and USA; and also had the highest percentage of using opioid intravenously (Brands et al., 2008, Lawrinson et al., 2008, Peles et al., 2008, Cacciola et al., 2001, Carpentier et al., 2009).

Table 1 The comparison of sociodemographic characteristics of patients in HIV Clinic, Methadone, and community

	Total (N = 281)	HIV Clinic (N = 144)	Methadone Clinic (N = 39)	Community (N =98)	p
Age (mean, SD)	31(6)	32 (5)	32 (3)	28 (7)	< 0,01
Gender, male (N (%))	220 (78)	93 (65)	37 (95)	90 (92)	< 0,01
Marital status (N (%))					0,01
Single	65 (23)	29 (20)	7 (18)	29 (30)	
Married	125 (44)	72 (50)	19 (49)	34 (35)	
Relationship	38 (14)	12 (8)	5 (13)	21 (21)	
Divorce	29 (10)	13 (9)	5 (13)	11 (11)	
Widow	24 (9)	18 (13)	3 (7)	3(3)	
Education(N (%))					0,03
No education	3 (1)	0 (0)	0 (0)	3 (3)	
Primary school	5 (2)	4 (3)	0 (0)	5 (2)	
Junior high school	42 (15)	21 (15)	1 (3)	20 (20)	
Senior high school	165 (58)	81 (56)	27 (69)	57 (58)	
College/ University	66 (24)	38 (26)	11 (28)	17 (17)	
Occupation (N (%))					0,13
Regular full time	93 (33)	49 (34)	9 (23)	35 (36)	
Regular part time	11 (4)	3 (2)	3 (8)	5 (5)	

Irregular work	8 (3)	4 (3)	1 (3)	3 (3)
Bussiness owner	81 (28)	46 (32)	16 (41)	19 (19)
Unemployed	75 (27)	37 (26)	10 (25)	28 (29)
Other	13 (5)	5 (3)	0 (0)	8 (8)

In addition we found that patients in HIV and Methadone Clinic has a better education s compared to the community group which might indicate that the costs limit access to these services. Indeed, reports from other low income countries provides substantial evidence that bringing down the cost of treatment improves access and adherence, and in turn, the success of public health programs (Thirthalli and Chand, 2009, Willenbring, 2005, Afriandi et al., Siregar et al., 2009). Access to care may be also limited by stigmatization and limited knowledge of addiction among health care workers and the consequent misconceptions including that PWID are generally non-compliant and not motivated to improve health (Haber et al., 2009). The integration of physical, psychiatric, and drug abuse treatment with methadone treatment may improve access to care and many studies have shown that this approach is beneficial and cost-effective (Wolfe et al., 2010, Palepu et al., 2006, Lamb et al., 1998, Berkman and Wechsberg, 2007, Haber et al., 2009, Trafton et al., 2006, Gourevitch et al., 2007, Kresina et al., 2004).

One third of the patients were underweight and there was no significant difference in the three groups (table 2). In addition, there was no correlation between the length of anti retroviral treatment with body mass index. This finding indicated that nutritional status among HIV patients has not been intervened. Many studies showed that nutritional status has a big role in improving immunological status in HIV patients.(Koethe et al., 2011, Siberry et al., 2002, Fawzi, 2003).

Patients with lower BMIs with a weight change of <10% during follow-up had markedly reduced CD41 lymphocyte recovery, suggesting that a failure to gain needed weight may be a marker of incomplete virologic suppression, an intercurrent illness or may preclude an optimal response to ART. Indeed, 39% (22/56) of patients in the group with BMIs <20 kg/m2 did not maintain virologic suppression for $6 months, compared with 34% (70/205) with BMIs of 20.0–24.9 kg/m2 (Koethe et al., 2011).

Lower BMI can be caused by symptoms that accompanied opportunistic infection in HIV patients. The common symptoms are loss of appetite, diarrhea, and fever. These conditions will lead to further reduced food intake, poor nutrient absorption, nutrient loss, altered metabolism, increased energy needs because of fever, possible increase in the need for other nutrients because of symptoms such as anaemia, HIV-associated wasting, and changing body composition (Siberry et al., 2002, Fawzi, 2003).

Table 2 The comparison of BMI of HIV patients in HIV Clinic, Methadone and Community based on WHO category for Asia Pacific.

	Total (N = 281) N (%)	HIV Clinic (N = 144) N (%)	Methadone Clinic (N = 39) N (%)	Community (N =98) N (%)	p
Underweight (<18.5)	66 (27)	42 (29)	7 (18)	17 (29)	0,49
Normal (18.5-22.9)	133 (55)	75 (52)	24 (62)	34 (58)	
At risk (23-24.9)	19 (8)	13 (9)	5 (13)	1 (2)	
Obese 1 (25-29.9)	22 (9)	13 (9)	3 (8)	6 (10)	

Obese 2 (>30)	2 (1)	1 (1)	0 (0)	1 (2)

Conclusion

Nutritional problems in HIV infected respondents in West Java was still high and need to be addressed in the HIV intervention program

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