CHAPTER I
INTRODUCTION

Rationale and Statement of the Problem

Acquired Immunodeficiency Syndrome (AIDS) is an infectious disease caused by Human Immunodeficiency Virus (HIV). HIV is one of the viral in the retrovirus family, which has two types of the disease identified HIV-1 and HIV-2. The Type 1 (HIV-1) is the major form of infection in HIV/AIDS throughout the world, while the Type 2 (HIV-2) is found mostly in West Africa.[1,2] Transmission of HIV occurs through three primary modes as follows: sexual intercourse, parenteral and perinatal. In sexual intercourse, the receptive anal and vaginal of intercourse are the most common modes of transmission. The probability of HIV transmission from receptive anorectal intercourse was 0.1% to 3% per sexual contact and was 0.1% to 0.2% per sexual contact for receptive vaginal intercourse. Using of contaminated needles or other devices by drug abusers has been the main cause of parenteral transmission of HIV, while, healthcare workers have a small occupational risk of getting HIV. Perinatal infection is the most common cause of pediatric HIV infection. The risk of mother-to-child transmission is approximately 25% in the absence of breast-feeding. Breast-feeding can also transmission HIV.[3] HIV/AIDS patients who have lower immune system or immune deficiency (CD4) would have a high risk to have opportunistic infections (OIs) and also increased morbidity and mortality.[1]

In 2007, there have been 33 million people living with HIV/AIDS (PLWHA) around the world, two million people died from HIV/AIDS worldwide and during this year here were 2.7 million newly infected patients worldwide, The reported from World Health Organization (WHO) showed that only 4 million HIV-positive people in low -income and middle-income countries can access to ARV medicines in 2008.. [4] The Bureau of Epidemiology and the Department of Disease Control reported that there were 358,260 cases of PLWHA and 95,983 deaths in Thailand. [5] AIDS is the important problem of Public Health, because majority of the PLWHA in Thailand were 15-59 years old.[5]

Presently, standard regimen in the HIV-infected/AIDS treatment is a combination of 3 or more antiretroviral drugs which is called "highly active antiretroviral therapy" (HAART).[1,6] HAART has a high efficacy in improving

immune function (CD4), reducing HIV viral in plasma, reducing opportunity drug resistance in treatment, improving quality of life and also reducing HIV-related morbidity and mortality.[1,7-10] HAART standard regimen which was used in Thailand, was GPO-vir, the combination of Stavudine (d4T), lamivudine (3TC), and Nevirapine (NVP). In case of the patients who cannot use GPO-vir, physician will shift to other regimens such as Efavirenz (EFV) instead of NVP.[5]

HIV infected/AIDS patients have to take ARV medicines continuously to extend their lifelong treatment.[1] Several studies found that adherence to antiretroviral regimens is an essential factor in providing adequate suppression of viral replication, increasing CD4 and reducing drug resistance. In contrast, non-adherence to the prescribed antiretroviral regimen is associated with a rapid infection of resistant HIV strains resulting in treatment failure.[6,7-10] Adherence is very important in terms of reducing the occurred emergence and spread of drug resistance with cross-resistance. HIV virus can resist to the other class of ARV medicine resulting in ineffectiveness of ARV treatment. Not just for an individual but also for the society. Little, Holte, Routy and others found that one in five newly infected patients infected the resistance virus.[11] Alteri explored a cohort of 255 newly diagnosed HIV-1 infected individuals and analyze the prevalence of HIV-1 strains with at least one major drug resistance, the finding showed that 10 was NRTI-resistance, 9 was NNRTI and 1 was PI-resistance.[12] Patients who acquired HIV from homosexual intercourses were mode of a virus with resistance mutation.[12] Paterson, Swindells, Mohr and others found that the adherence level more than 95 percent was necessary for HIV viral suppression.[13] The finding showed that if adherence decreases, viral load (VL) will increase in a dose–response effect. In addition, Hogg, Yip, Chan and others reported that every 10 percent of the decrease in adherence will increase 16 percent of HIV-related mortality.[14]

At present, there were 1,080 new HIV-infected/AIDS patients at TAKSIN Hospital. Seventy-four patients died during January to November 2009. The result of using interviewing to measure adherence of HIV infected/AIDS patients at Taksin Hospital showed that 99.3% of the patients had adherence $\geq$ 95%> However, when using SMAQ questionnaire which was developed by Knobel, Alonso, Casado and others[8], it was found that only 54% of patients (26 cases of 48 cases) had adherence $\geq$ 95%. Up to now, there is no gold standard in the measurement of adherence.[1] WHO recommended to use multi-method for measurement patient adherence in order

to increase the accuracy of the results.[4] WHO suggested that only one tool may not be valid and may not have high accuracy. The tools to measure the adherence in this study were multi-method tools which were recommended from Steel, Nwokike, Joshi and others [15] study including Self-report assessment, Visual analogue scale (VAS), Pill Identification Test (PIT), and Pill count. The study also explored factors affecting adherence to antiretroviral therapy (ART) among HIV-infected/AIDS patients at TAKSIN Hospital. This study will be useful for provider worker for applying the result in their practice of clinic HIV/AIDS at TAKSIN Hospital. It will increase the understanding of patient's behavior and will be used to support the adherence to antiretroviral therapy. This will improve the immune function, reduce HIV viral in plasma, reduce opportunity of drug resistance in treatment, improve quality of life, reduce HIV-related morbidity and mortality, and reduce failure to treatment in the future.

Research question

1. What is the adherence level of HIV/AIDS patients at TAKSIN Hospital measured by multi-method tools?
2. What are the factors affecting adherence to ARV medication of HIV/AIDS patients at TAKSIN Hospital?

Objectives of the study

1. To assess the adherence to ARV medication among HIV-infected/AIDS patients at TAKSIN hospital by using multi-method tools.
2. To analyze the relationship between factors affecting patient adherence to ARV medication and the adherence level.

Scope of the study

The samples in this study were HIV-infected/AIDS patients who took antiretroviral therapy at TAKSIN Hospital. The time period for data collection was during March 2010- April 2010.

Expected benefits

1. The multi-method assessment could be applied for patient adherence in routine practice.
2. Physician-patient relationship may be improved based on the results from this study.
3. Health care providers could increase the level of patient adherence by using the results related to factors influencing on patient adherence.

Definition used in the study

ART is antiretroviral therapy.

HAART is antiretroviral therapy more than or equal to 3 drugs in combination which is called "highly active antiretroviral therapy.(HAART)

Adherence is defined as taking medicine with correct type, correct dose and correct time , taking medicine on time (not to exceed half an hour) , taking medicine always (everyday), taking medicine continuously (continually forever) by patients who participate with the plan and willingly decide in taking medicine according to the prescribed medicine.[16]

Poor adherence is the level of adherence that a patient had which was <95% of adherence.

Good adherence is the level of adherence that a patient had which was ≥ 95% of adherence.

Multi-method tool is adherence assessment by using four tools [15] that consist of Self-report, Visual analogue scale (VAS), Pill Identification Test (PIT), Pill count.

Patient-related factors are the factors including knowledge of disease and medication, gender, age, status, education, occupation, income, self-efficacy.[17,18, 19]

Health care team-related factors are the factors including patient-healthcare provider relationship.[17, 18, 19]

Treatment-related factors are the factors including dose frequency, adverse effects, duration of treatment.[17, 18, 19]

Social or Family Support factors are the factors including friend, family, cousin, and AIDS patients who support patient.[17, 18]

Conceptual framework