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Characteristics of pregnant women with HIV infection following Prevention of Mother to Child Transmission of HIV (PMTCT) program in Sanglah general hospital 2005-2014



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ABSTRACT

Background: Increasing incidence of HIV infection in pregnancy will increase the risk of mother to child transmission of HIV. The objectives of prevention of mother to child transmission (PMTCT) is to prevent the mother to child HIV transmission and HIV infection epidemic. Our study aimed to provide data on characteristics of pregnant women with HIV infection following PMTCT Program services in Sanglah General Hospital.

Methods: A descriptive study was held by reviewing medical records of pregnant women with HIV infection following PMTCT program in Nigraha Clinic Sanglah General Hospital during 2005-2014 period.

Results: In 10 years' period (2005-2014), out of 11,019 pregnant women 273 cases (2.48%) were pregnancy with HIV. Most cases were found in 20-29 years old group (68.86%), had finished high school

education (57.50%), working as full-time housewives (67.39%), came from Denpasar (39.56%). The most risk factors were heterosexual husband (46.88%). Most cases were para 1 (42.85%), referred from Sanglah General Hospital VCT Clinic (40.65%), first visit PMTCT clinic on more than 28 weeks' gestational age (48.71%), found at HIV stage I (70,32%). 43.22% had been taking Antiretroviral (ARV) for more than 6 months. The mode of delivery was cesarean section (CS) (60.16%), at 37-42 weeks of pregnancy (73.58%). Most infants were born with birth weight more than 2500 gram (72.65%) and with non-reactive test result (50%).

Conclusions: Prevention of Mother to Child Transmission of HIV (PMTCT) in Sanglah General Hospital is effective in preventing mother to child transmission of HIV.

Keywords: HIV infection, PMTCT, Sanglah General Hospital

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INTRODUCTION

Human Immunodeficiency Virus (HIV) is cytopathic virus classified in family Retroviridae, subfamily Lentivirinae, genus Lentivirus. Structurally, HIV is a retrovirus, RNA virus with molecular weight 9.7 kb (kilobases). Two types of HIV have been characterized: HIV-1 and HIV-2. HIV-1 is more virulent, more infective, and is the cause of the majority of HIV infections globally.¹

Risk factors of HIV are unsafe sexual intercourse with infected partner, receiving blood transfusion that are contaminated with HIV, sharing needles or syringes between drug users, sharing medical equipment used to prepare drugs for injection with someone who has HIV, and from mother to child during pregnancy, birth, or breastfeeding.^{2,3,4}

According to Centers for Disease Control and Prevention (CDC), about 80% women with AIDS are in reproductive age period. In United States, from 1.2 million people living with HIV infection, 25% are women. In Sub-Saharan Africa, 76% of HIV infected persons are women. These trends will also

cause an increment in the prevalence of pregnant women living with HIV.⁵ Prevalence of HIV infection in Indonesia women is 16%, with majority cases (92.54%) within active reproductive period (15-35 years old), the number of pregnancy with HIV infection supposed to be increasing.⁶ An estimated of 7000 infants born from HIV-infected mother and 1000-2000 infants (about 28%) will also get infected.^{7,8}

PMTCT service gets more attention due to rapid increment in HIV/AIDS epidemic in Indonesia. Prevention of mother to child transmission of HIV (PMTCT) is an important effort because most of women living with positive HIV infection are in active reproductive state and 90% of HIV-infected infant was infected through mother to child transmission.^{9,10} In developed countries, the risk of mother to child transmission was about 2% due to optimal service of mother to child HIV transmission prevention service. However, in developing country such as Indonesia, without medical intervention access, the risks were between 25%-45%.

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Prevention of HIV transmission to infant would be insufficient if provider only focused on pregnant women who is already infected. On the other hand, a primary prevention has to be taken to prevent women from HIV infection or decreasing the risk of infant getting infected from mother who is unaware of her positive HIV status.⁹ The infant screening method chosen is PCR HIV-RNA examination confirmed by anti-HIV examination at 18 months old.¹¹

The prevention of mother to child transmission of HIV (PMTCT) program in Sanglah General Hospital is provided in *Nigraha* Clinic which was built on December 2005. The team consists of medical experts from Obstetric and Gynecology Department, Pediatrician, and HIV Counselor. The program activities are HIV screening for pregnant women, antenatal, intranatal, and postnatal care, counseling, and monitoring of HIV-infected infants.^{12,13}

METHODS

Retrospective descriptive study was held by reviewing the medical records of all pregnant women with HIV infection who was following PMTCT program in Sanglah General Hospital during 2005-2014 period. Data was collected to obtain the prevalence, patient characteristics, clinical patterns, mode of delivery, and fetal outcome of pregnant women with HIV infection in Sanglah General Hospital. The data then analyzed in descriptive method.

RESULTS

In ten years' period of time (2005-2014), there were total of 11,019 pregnant women visiting Obstetric and Gynecology polyclinic Sanglah General Hospital, with 273 cases (2.48%) was recorded as pregnancy with HIV infection in registration record *Nigraha* PMTCT clinic of Sanglah General Hospital.

From patient characteristic, according to collected data, the majority of HIV cases found in reproductive age between 20-29 years old as 188 cases (68.8%), with the highest education secondary high school 157 persons (57.50%). Most patients work as full-time housewives in 184 cases (67.39%). The majority of HIV cases were originally from Denpasar (39.56%), the most found risk factor is heterosexual husband in 128 cases (46.88%). According to parity, majority of cases found with para 1 (42.85%). Most patients were referred from Sanglah VCT clinic (40.65%).

Based on patient clinical patterns, we found that on the first visit to PMTCT clinic, patients were in more than 28 weeks of gestational age (48.71%), 192 cases were found at HIV stage I (70.32%), while 32

Table 1 The characteristics of pregnant women living with HIV who was following PMTCT program in Sanglah General Hospital during 2005-2014 period

| Characteristics | n | % |
|-------------------------------|-----|-------|
| Age | | |
| 15-19 years' old | 19 | 6.95 |
| 20-29 years' old | 188 | 68.86 |
| 30-39 years' old | 64 | 23.44 |
| >40 years' old | 2 | 0.73 |
| Education | | |
| Not educated | 5 | 1.83 |
| Elementary School | 29 | 10.62 |
| Primary High School | 60 | 21.92 |
| Secondary High School | 157 | 57.50 |
| Academy | 9 | 3.29 |
| Scholar | 13 | 4.76 |
| Transmission Risk Factor | | |
| Heterosexual | 43 | 15.75 |
| IDU* + Heterosexual | 12 | 4.39 |
| IDU* | 8 | 2.93 |
| IDU* husband | 12 | 4.39 |
| Heterosexual husband | 128 | 46.88 |
| Heterosexual husband+ IDU* | 15 | 5.49 |
| Husband and heterosexual case | 35 | 12.82 |
| Unknown | 20 | 7.32 |
| Occupation | | |
| Full-time housewife | 184 | 67.39 |
| Private employee | 40 | 14.65 |
| Villa/Hotel/Spa | 10 | 3.66 |
| Prostitute | 24 | 8.79 |
| Trader | 6 | 2.19 |
| Public employee | 3 | 1.09 |
| Servant | 2 | 0.73 |
| Cleaning Service | 2 | 0.73 |
| Nurse | 1 | 0.36 |
| Prisoner | 1 | 0.36 |
| Parity | | |
| 0 | 95 | 34.79 |
| 1 | 117 | 42.85 |
| 2 | 51 | 18.68 |
| 3 | 8 | 2.93 |
| 4 | 1 | 0.36 |
| >4 | 1 | 0.36 |
| Referral Origin | | |
| VCT Sanglah | 111 | 40.65 |
| Not referred | 37 | 13.55 |

Table 1 (Continued)

| Characteristics | n | % |
|---------------------------------|-----|-------|
| YKP | 29 | 10.62 |
| VCT Merpati | 23 | 8.42 |
| Others | 73 | 26.74 |
| Gestational Age | | |
| ≤ 12 weeks | 45 | 16.48 |
| 12-28 weeks | 95 | 34.79 |
| >28 weeks | 133 | 48.71 |
| Therapy Duration | | |
| < 6 months | 125 | 45.78 |
| ≥ 6 months | 118 | 43.22 |
| Not yet | 30 | 10.98 |
| Gestational Age When Terminated | | |
| < 20 weeks | 18 | 6.79 |
| 20-<37 weeks | 52 | 19.62 |
| 37-42 weeks | 195 | 73.58 |
| > 42 weeks | 0 | 0 |
| Stage of HIV infection | | |
| I | 192 | 70.32 |
| II | 39 | 14.28 |
| III | 10 | 3.66 |
| IV | 32 | 11.72 |
| Mode of delivery | | |
| CS | 154 | 60.16 |
| CS + Tubectomy | 67 | 26.17 |
| Spontaneous | 20 | 7.81 |
| Curettage | 11 | 4.29 |
| Cunam mouzeauk | 1 | 0.39 |
| Suction sterile | 3 | 1.17 |
| Birth Weight | | |
| < 500 gram | 14 | 5.46 |
| 500-1000 gram | 7 | 2.73 |
| 1000-2500 gram | 49 | 19.14 |
| >2500 gram | 186 | 72.65 |
| Infant HIV Status | | |
| Non reactive | 105 | 50 |
| Reactive | 1 | 0.47 |
| Death | 25 | 11.90 |
| Lost to follow up | 41 | 19.52 |
| Not Identified yet | 38 | 18.09 |

cases (11.72%) were found in HIV stage IV on first visit. From past medication history, 118 cases had been taking Antiretroviral (ARV) for more than 6 months. The mode of pregnancy termination of choice was cesarean section (CS) done in 154 cases

(60.16%), at 37-42 weeks of pregnancy in 195 cases (73.58%) while spontaneous delivery happened in 20 cases (7.81%). Most infants were born with birth weight more than 2500 gram (72.65% of cases), abortus in 5.46% of cases. According to the serology test results, 105 babies (50%) born with non-reactive test result.

DISCUSSION

In ten years' period of time (2005-2014), there were total of 11,019 pregnant women visiting Obstetric and Gynecology polyclinic Sanglah General Hospital, with 273 cases (2.48%) was recorded as pregnancy with HIV infection in registration record of *Nigraha* PMTCT clinic of Sanglah General Hospital. Most cases were found at reproductive age between 20-29 years old. It is supported by the AIDS Management Committee Reports which stated that HIV transmission happens earlier, most patient were detected at productive age (15-29 years old) being infected and suffering from AIDS.

According to Health Ministry report, more than 50% cases of AIDS was documented at 15-29 years old and most cases found at 20-29 years old. The explanation is at the range of age, people are sexually active, some has free sexual lifestyle and injectable drug abuse, resulting in increasing risk of being HIV infected in reproductive age.¹⁴ Women at the age range also in reproductive age, thus has the higher possibility of getting pregnant.^{6,15,16} In our study, most pregnant women with HIV has highest education at secondary high school. A contrast results cited from previous study in which there were significant correlation ($P<0,05$) between educational status and HIV where the lower educational status would result in higher risk of getting HIV infection.¹⁶ Educational status has an effect on HIV diffusion and distribution in population.¹⁷

It effects on the health knowledge and job opportunity.

The contradiction in these study may be as a results of government 9 years' educational obligatory program leading to an increment proportion on civilians with higher educational status (primary and secondary high school).

In this study, we found risk factors of HIV transmission for most cases were caused by heterosexual husband in 128 cases (46.88%). From data obtained in patient's medical reports, we found transmission occurred after high risk sexual behavior (heterosexual) done both by the women herself or her sexual partners. The results similar to the reports cited by Marhaena¹⁶ which stated that HIV transmission proportion through sexual intercourse (both

heterosexual or homosexual) dominating in almost 60% cases.

According to this study, we found that in 184 cases (67.39%) patients were working as full-time housewives. It shows on how important husband infection state as a risk factor of HIV transmission to the pregnant women and explains that although full-time housewives have no correlation with high risk lifestyle, pregnant women have high risk of HIV transmission related to their husband's HIV status. It involves gender problems, the power they have in their household, and discrimination.^{18,19}

Most cases of pregnant women with HIV were multiparity with para 1 in 117 cases (42.85%), it is relevant to the other results of this study which stated that most cases were found at 20-29 years old, which also considered as reproductive age.

We also found that 86.45% cases were referral with the patient was confirmed HIV positive before visiting PMTCT polyclinic. Referral is inevitable due to PMTCT program service has not reach throughout all of districts in Bali.

Based on patient clinical patterns, we found that on the first visit PMTCT clinic, patients were in more than 28 weeks of gestational age (48.71%), 192 cases were found at HIV stage I (70.32%). With earlier antenatal care in pregnancy, nutritional state can be monitored and corrected if necessary. Antiretroviral (ARV) can be given as early as possible to suppress the viral load. Moreover, it is possible to plan the best mode of delivery to prevent mother to child transmission of HIV. From 273 cases, we found 118 patients (43.22%) were having ARV medication for more than 6 months when they visited PMTCT clinic while 125 patients (45.78%) were having ARV medication less than 6 months. Only 30 patients (10.98%) has no history of ARV medication until the end of her pregnancy. Administration of ARV for more than 6 months expected to reduce the viral load to the undetected level, thus reducing the risk from mother to child transmission of HIV. The most influencing factor are the viral load (the number of virus found in the mother's blood). Therefore, the main purpose of ARV therapy is to reach the undetectable of viral load. Viral load is also an important marker in labor. The transmission rate will significantly increase in mother with high viral load toward or in labor.⁴

The mode of pregnancy termination of choice was cesarean section (CS) done in 154 cases (60.16%), at 37-42 weeks of pregnancy in 195 cases (73.58%). It was relevant to The Committee on Obstetric Practice of the American College of Obstetrics and Gynecology recommendation that all pregnant women with HIV infection, without considering their past ARV medication status, should be offered planned cesarean section on

38 weeks of gestational age and before the rupture of the amniotic membrane.^{20,21}

Based on neonatal outcomes, we found that 49 infants (19.14%) were born with birth weight between 1000-2500 gram, this result was supported by a literature stated that about 20% women with HIV infection end in premature delivery and 24% will be found with intrauterine growth restriction. It is possible that the number of these cases are higher in developing country. Prematurity has well known correlated to immune deficiency including T-cells defect and the rapid progress of non-HIV virus diseases.²²⁻²⁵ From 25 children who died, their HIV status remains unclear as they were died before 18 months old. Most of the death causes are related to prematurity. All patients following PMTCT program since first and second trimester or patients who were taking ARV before getting pregnant, their infants were non-reactive.

CONCLUSION

According to the data, we found that pregnant women with HIV case is higher in reproductive age, para 1, and heterosexual sex partner. Cesarean section was done in most cases and the babies had negative serology tests. Prevention of Mother to Child Transmission of HIV (PMTCT) in Sanglah General Hospital is effective in preventing mother to child transmission of HIV.

REFERENCES

1. Leveno KJ, Cunningham FG, Alexander JM, Bloom SL, Casey BM, Dashe JS, Sheffield JS. Human Immunodeficiency Virus. In: Leveno KJ, editor. Williams Manual of Obstetrics Pregnancy Complications. 22nd Ed. New York: McGraw-Hill; 2008. p. 420-425.
2. Allworth A, Anderson J, Andrews P, Beers K, Bradford D, Bramwell M, Brotherton A. Exposure and acute HIV infection. In: Dore G, Grulich A, Hoy J, Kidd M, McCoy R, Mijch A, Strasser S, editors. HIV/Viral Hepatitis a guide for primary care. 1st Ed. Adelaide: Finsbury Printing; 2004. p. 30-36.
3. Carter M. Focus on six risk factors could prevent up to 80 % of HIV infections in South African women. 2010 [accessed August 2, 2016]. Available from: <http://mobile.aidsmap.com/news/Focus-on-six-risk-factors-could-prevent-up-to-80%-of-HIV-infections-in-South-African-women/page/1545624>.
4. Pratomo H, Djauzi S, Naing AM, Anwar AD, Besar DS, Setiabudi D, Resmiati F. Faktor Risiko Penularan HIV Dari Ibu Ke Bayi. In: Pratomo H, editor. Pedoman Nasional Pencegahan Penularan HIV Dari Ibu Ke Bayi. Jakarta: Departemen Kesehatan Republik Indonesia; 2006. p. 13-18.
5. Psaros C, Geller PA, Aaron E. The importance of identifying and treating depression in HIV infected pregnant women: a review. *J. Psychosom. Obstet. Gynaecol.* 2009;30(4):275-281.
6. Ronoatmojo S, Riono P, Setyahadi MI, Saroyo YB, Muktiarti D, Kusumowardhani D, et al. Pencegahan Penularan HIV/AIDS Dari Ibu Ke Bayi Panduan Bagi Petugas Kesehatan. *PB Ikatan Dokter Indonesia.* 2008:1-55.

7. Siegel K, Schrimshaw W. Reasons and Justifications for Considering Pregnancy Among Women Living With HIV/AIDS. *Psychology of Women Quarterly*. 2001;25(2):112-123.
8. Budiarto, E., Anggraeni, D. Pengamatan Epidemiologis (Surveilans). In: Dayyana R, editor. Pengantar Epidemiologi. Jakarta: EGC; 2002. p. 100-106.
9. Depkes RI. Modul Pelatihan Pencegahan Penularan HIV dari Ibu ke Bayi. Jakarta: Depkes RI; 2008.
10. Kementerian Kesehatan. Rencana Aksi Nasional pencegahan Penularan HIV Dari Ibu Ke Anak (PPIA), Indonesia 2013-2017. Jakarta: kementerian Kesehatan; 2013.
11. Cole FS. Fetal/newborn HIV infection. In: Taesuch HW, Ballard RA, Fletcher J, editor. *Avery's diseases of newborn*. 7th Ed. Philadelphia: Elsevier; 1998. p. 453-466.
12. Rumah Sakit Umum Pusat Sanglah. PMTCT RSUP Sanglah. Denpasar: RSUP Sanglah; 2008.
13. Kementerian Kesehatan Republik Indonesia. Realisasi Belanja Kementerian Kesehatan Mengalami Peningkatan. Kementerian Kesehatan Republik Indonesia [artikel online] 2011 [accessed March 11, 2014]. Available from: URL: <http://www.depkes.go.id/index.php/berita/press-release/1380-realisasi-belanja-kementerian-kesehatan-mengalami-peningkatan.html>.
14. Departemen Kesehatan RI Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan. Pedoman Nasional Perawatan, Dukungan, dan Pengobatan Bagi ODHA. Jakarta: Direktorat Jenderal Pengendalian Penyakit dan Penyehatan Lingkungan Depkes RI; 2003.
15. Kwiek JJ, Mwapasa V, Alker AP, Muula AS, Misiri HE, Molyneux ME, et al. Socio-demographic characteristics associated with HIV and syphilis seroreactivity among pregnant women in Blantyre, Malawi, 2000-2004. *Malawi Medical Journal*. 2008;20(3):80-5.
16. Marhaena. Situasi HIV dan AIDS di Indonesia. In: Komisi Penanggulangan AIDS. 2010.
17. Poundstone KE, Strathdee SA, Celentano DD. The Social Epidemiology of Human Immunodeficiency Virus/ Acquired Immunodeficiency Syndrome. *Epidemiol Rev*. 2004;26:22-35
18. Naidoo Y. *South African Indians and HIV/AIDS: towards an understanding of HIV transmission dynamics in the Chatsworth community*. Human Sciences Research Council [serial online] 2008 [accessed March 11, 2014]. Available from: URL: www.hsrb.ac.za/research/output/5494_Naidoo_SAIIndiansandHIVAIDS.pdf
19. Arora U, Chopra S, Jindal N. HIV Infection in families in and around Amritsar. *Journal Indian of Academy Clinical Medicine*. 2008;9:184-8.
20. Fernandez AD, McNeeley DF. Management of the infant born to a mother infected with human immunodeficiency virus type 1(HIV-1): Current concepts. *Am J of Perinatology*. 2000;17:429-435.
21. Minkoff HL. Prevention of mother-to-child transmission of HIV. *Clinical Obstetrics and Gynecology*. 2001;44:210-225.
22. John GC, Kreiss J. Mother-to-child transmission of human immunodeficiency virus type 1. *Epidemiol Rev*. 1996;18(2):149-57.
23. Bongertz V. Vertical human immunodeficiency virus type 1-HIV-1-transmission a review. *Mem Inst Oswaldo Cruz*. 2001;96(1):1-14.
24. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spooning CY. Sexually Transmitted Diseases. In: Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spooning CY, editors. *Williams Obstetrics*. 23rd Ed. New York: McGraw-Hill; 2010. p. 1310-7.
25. Cunningham FG, Leveno KJ, Bloom SL, Hauth JC, Rouse DJ, Spooning CY. Human Immunodeficiency Virus (HIV) Infection. In: Twickler D, Wendell G, editors. *Williams Obstetrics*. 23rd Ed. New York: McGraw-Hill; 2010. p. 1246-53.



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