

Culture & Sensitivity Test on the Vaginal Specimen of Female Commercial Sex Workers in Yogyakarta in 2007

R. Suhadi, L.Kuswibawati, M.Sutama

Fac.of Pharmacy

Sanata Dharma University Yogyakarta

ACCP 8 - Surabaya, July 2008

BACKGROUND

- The condom usage is not a compulsory practice in Pasar Kembang, only few Commercial Sex Workers (CSWs) used condom (Putranto, 2002 and Sutama, 2005).
- **Indonesian Parenthood Planned Federation (IPPF)** or PKBI Yogyakarta: 140 CSW patients with Sexually Transmitted Diseases (STDs) in Jan-Sep 2006 in Griya Lentera Clinics Pasar Kembang.

Irrational Antibiotic Usage

Previous studies done in the Location reported the irrational usage of the antibiotics among the CSWs, mostly related to dosage regimen i.e. the administration frequency and duration.

- Testimonial data (2006) from the 16 CSWs^{*}:
2 CSWs had used ampicillin for 5-10 ten years once daily; 11 used of ampicillin/amoxicillin 1X/week, or 3X/month, or after contacted with suspected customers; only 3 CSWs admitted used antibiotics correctly.

Tabel I. Comparison Antibiotic Profile used by CSWs Located in Pasar Kembang in 3 Surveys

Types of Antibiotics	Antibiotic usage: (Putranto, 2002)	Antibiotic usage: (Sutama, 2005)	Interview done in 2006*
Ampicillin	63%	46%	10 subjects
Amoxicillin	23%	31,8%	7 subjects
Tetracycline	14%	22,2%	2 subjects

*16 subjects selected with purposive sampling, multiple answers were allowed.

HIV-AIDS

- The risk of HIV/ AIDS increases among the patients with STDs. HIV/AIDS is the global threatening issue, and ranked at 4 place among the top 20 causes mortality throughout the world (WHO,2003). More than 60 million people have been infected including >20 million death.
- IPPF (May 2006): 308 HIV/AIDS cases in Yogyakarta. And the HIV epidemic in Indonesia is the fastest growing in Asia (UNAIDS-WHO, 2007).

The irrational usage of antibiotics raised:
1. the microbe resistance against antibiotics.
2. the HIV/AIDS incidence



Objective

- To obtain the microbes profile and microbe sensitivity against certain antibiotics.

STUDY DESIGN

- Cross sectional, field and laboratorium survey
- Data analysis: descriptive statistics

METHOD

- 21 subjects from Griya Lentera Clinic suspected being STD patients in May to July 2007 participated in the study.
- Subject selection: purposive non random sampling (professional judgement).
- Specimen of vaginal swab was collected in agar media. Culture and sensitivity test was done at Lab.of Clinical Pathology, Gadjah Mada University.

RESULTS

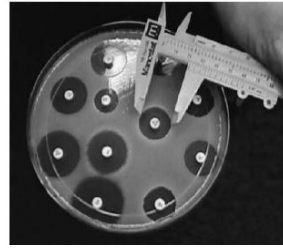


Figure 1. Sensitivity Test of Antimicrobes with the method of *disk diffusion susceptibility test* (Rybak & Aeschlimann, 2005).

Table II. The Profile of Microbes Cultured from the Vaginal Specimen of the CSWs Griya Lentera Clinic in May-July 2007

No.(s) cultured microbes	Types of microbes	Frequency
Single microbe (11 subjects)	<i>Pseudomonas aeruginosa</i>	6
	<i>Staphylococcus epidermidis</i>	3
	<i>Escherichia coli</i>	2
Combination of 2 microbes (8 subjects)	<i>Pseudomonas a. + Strep. faecalis</i>	2
	<i>Pseudomonas a. + Staph.epidermidis</i>	3
	<i>Pseudomonas a. + Strep. viridans</i>	1
	<i>Pseudomonas a. + Candida albican</i>	1
	<i>E.coli + Candida albican</i>	1
Combination of 3 microbes (1subject)	<i>Pseudomonas a.+ Staph.epidermidis+Strep.viridans</i>	1
Combination of 4 microbes (1subject)	<i>Pseudomonas a.+ E.coli+Strep.viridans+Candida a.</i>	1

STDs possibly caused by:

- ** *Streptococcus type B* STDs (Knodel, 2005)
- Secondary infection: *Staph. aureus* and *Strep. Group A* (Golden, 2001)
- Vulvovaginal candidiasis: *Candida albican*

UTI commonly caused by:

- *Bacteria: *Staph.epidermidis* and *S.aureus* (Gupta & Stamm, 2001);
- *E.coli*, *Pseu.auroginosa* (Coyle & Prince, 2005)

Table III. The Sensitivity Test Profile in May-July 2007 on Vaginal Swab Specimen of the CSWs in Griya Lentera Clinic

Type of microbes	Frequency	Ampicillin			Amoxicillin			Ciprofloxacin		
		S	I	R	S	I	R	S	I	R
Gram - *										
1. <i>Pseudomonas aeruginosa</i>	15	2	1	12	2	0	13	14	1	0
2. <i>Escherichia coli</i>	4	1	0	3	1	1	2	3	0	1
Gram +										
1. <i>Streptococcus faecalis</i> **	3	2	0	1	3	0	0	2	1	0
2. <i>Streptococcus viridans</i> **	2	0	1	1	1	0	1	1	1	0
3. <i>Staph. epidermidis</i>	7	1	1	5	1	0	6	5	1	1
TOTAL	31	6	3	22	8	1	22	25	4	2

S= sensitive I=intermediate R= resistant

4 microbes had been resistant to ampicillin, amoxicillin, ciprofloxacin i.e. *Pseudomonas aeruginosa* (1), *Staphylococcus epidermidis* (2), and *Escherichia coli* (1).

Table IV. Sensitivity of Antibiotics of Spesimen Vaginal Swab of the CSWs in Griya Lentera Clinic in May -July 2007

Antibiotics	Sensitivity against Gram -			Sensitivity against Gram +				Total G-dan G+
	G ₋₁	G ₋₂	G _{-Tot}	Gr ₊₁	Gr ₊₂	Gr ₊₃	G _{+Tot}	
Ampicillin	2(15)	1(4)	3(19)	2(3)	0(2)	1(7)	3(12)	6(31)
Amoxicillin	2(15)	1(4)	3(19)	3(3)	1(2)	1(7)	5(12)	8(31)
Ciprofloxacin	14(15)	3(4)	17(19)	2(3)	1(2)	5(7)	8(12)	25(31)

Note:

G-1= *Pseu.aeruginosa*. G-2= *E.coli* G+1= *Streptococcus faecalis*

G+2= *Streptococcus viridans* G+3= *Streptococcus epidermidis*

2(15) means 2 of 15 episodes of the C&S test were sensitive.

Possible correlation between the resistance and the frequency of the irrational antibiotic usage of ampicillin

Fungal Infection:

- There were 3 episodes of fungal infection (*Candida albican*) in combination with bacteria found in the study. Among them 2 episodes were sensitive to ketoconazole, nystatine, and amphotericine B, and 1 episodes was resistance to all above mentioned antifungi but sensitive to miconazole.

Topical miconazole and fluconazole single dose per oral (150mg) are the drug of choice for *Candidiasis* (Koda-Kimble et.al. 2002).

DISCUSSION

- The HIV transmission in Indonesia occurs through 3 ways, i.e. contaminated injected equipment, unprotected paid sex, and unprotected sex between men. Though unprotected sex stood in the 2nd, this situation was gave serious impact, as many injecting drug users also buy or sell sex.
- Survey done in Bandung Jakarta & Medan (2005) found that 1/4 of injecting drug users said they had had unprotected paid sex in the previous year (MoHI&Statistics Indonesia, 2006 cit UNAIDS-WHO, 2007).
- The community awareness of HIV was still very low. The education regarding HIV-AIDS is very limited.
- Stop HIV transmission.

Limitation of the study

- Limited types of microbes grew from the culture, the most common STDs in Indonesia i.e. gonorrhoea (GO) and *Chlamydia sp.*, could not be cultured in this conventional C&S test.
- Probably the CSWs were still under the influence of antibiotics effects. There was no wash-out period for antibiotics used by the subjects in the study.

Conclusion

1. C&S Test of 21 subjects; each consisted of 1-4 microbes; 31 cultures grew; the highest incidences were *P. aeruginosa* (6 samples), *S.epidermidis* (3), and combination of *P.aeruginosa* and *S.epidermidis* (3); *C.albicans* in combination with bacteria (3); 4 microbes were resistant to ampicillin, amoxicillin, ciprofloxacin.
2. The best sensitivity of antibiotics belonged to ciprofloxacin (25/31); followed by amoxicillin (8/31), and ampicillin (5/31).

Suggestions

1. Regarding that numerous factors involve in the transmission of STDs including HIV, an interrelated professionals, NGOs, and Government should participate in creating the education of HIV awareness. The target for the education are not only Commercial Sex Workers but also the customers.
2. Regulation of the condom usage should be immediately applied to prevent HIV/AIDS transmission.

Acknowledgement

The authors are very grateful to :

1. Director and staff **Indonesian Parenthood Planned Federation (IPPF)** or PKBI Yogyakarta and all medical staff in Griya Lentera Clinic for the collaboration and assistance during data collection.
2. Severina Haryuni, Adistyawan Yoga, Themy Lavatinova, Vicensius Anjar, Yulia Ratika, Ferawati Klaudia for the kind assistance as field data collectors.

THANK YOU