Research Article

Pap Smear Cytology Results in Patients Under Visual Inspection of Acetic Acid (VIA) in Primary Health Care Centre

Hasil Sitologi Pap Smear pada Pasien di Bawah Inspeksi Visual Asam Asetat (IVA) di Pusat Perawatan Kesehatan Utama

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Abstract

Objective : : We compared the results of Pap Smear and VIA in Primary Healthcare Centres (PHCs).

Methods : This was a descriptive study that investigated Pap smear cytology results in patients who underwent visual inspection of acetic acid in PHC for early detection of cervical cancer. This research was done in three PHCs (Tikala Baru, Tuminting and Paniki), which appointed by Manado Health Department as they have certified general practitioner, midwives, and nurse for VIA examination. The Pap smear examination was performed by researchers and VIA performed by certified PHC VIA Team using tools, equipment, available at the PHCs without intervention.

Results : Of 55 subjects, 15 and 40 subjects were VIA positive and negative, respectively. Fifteen samples with positive VIA there were only three subjects with dysplasia (LSIL) results in Pap smear, and 40 samples with VIA negative there were two samples with dysplasia (LSIL) results in Pap smear.

Conclusions : The result of VIA examination in primary health care with VIA positive was only 20% had dysplasia (LSIL) on pap smears, and negative VIA sample was 5% with dysplasia (LSIL) on Pap smear.

Keywords : cervical cancer, pap smear, VIA

Abstrak

Tujuan : *Membandingkan hasil pemeriksaan gambaran sitologi Pap Smear dengan hasilpemeriksaan IVA di Puskesmas.*

Metode : *Penelitian ini merupakan penelitian deskriptif untuk mengetahui hasil sitologi Pap Smear pada pasien yang telah dilakukan pemeriksaan inspeksi visual asam asetat di fasilitas kesehatan tingkat I untuk deteksi dini kanker serviks. Penelitian ini dilakukan di tiga Puskesmas (Puskesmas Tikala Baru, Tuminting, dan Paniki) yang telah diberikan pelatihan IVA yang ditunjuk oleh Dinas Kesehatan Kota Manado. Pemeriksaan Pap Smear dilakukan oleh penelitidan IVA dilakukan oleh petugas kesehatan tingkat I dengan menggunakan alat, perlengkapan, yang tersedia di Puskesmas tanpa intervensi.*

Hasil : *Dari 55 subyek, didapatkan 15 subyek dengan IVA positif, dan 40 subyek dengan IVA negatif. Dari 15 subyek dengan IVA positif hanya terdapat 3 orang diantara dengan hasil displasia pada Pap Smear, dan 40 subyek dengan IVA negatif terdapat 2 orang dengan hasil displasia pada Pap Smear.*

Kesimpulan : *Hasil pemeriksaan IVA di fasilitas kesehatan tingkat I dengan IVA positif hanya 20% memliki gambaran displasia (LSIL) pada hasil Pap smear dan sampel dengan IVA negative terdapat 5% dengan gambaran displasia (LSIL) pada hasil Pap Smear.*

Kata kunci : *IVA, kanker serviks, pap smear*

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INTRODUCTION

Visual inspection of the cervix with acetic acid (VIA) was a program that Indonesia's Ministry of Health begins from 2015 until 2019 in order to run a project called "Prevention and Early Detection of Cancer in Woman". The objective of this project is to decrease the morbidity and mortality of breast cancer and cervical cancer as the leading cause of cancer among woman. Hopefully, this program will help to increase early detection for precancerous lesions in cervical cancer. Visual inspection of the cervix with acetic acid (VIA) is an effective, immediate, inexpensive screening test that can be done in PHCs and provided by trained health workers such as midwife and general practitioner.[1]

In order to make this cervical cancer prevention more effective and well treated, WHO using a particular approach to administer the screening of precancerous lesion of cervical cancer. Respectively, VIA and conventional Pap smear which is the recommended screening to this program had their advantages and disadvantages.[2]

Cervical cancer is the second most common cancer in Indonesia with an incidence of approximately 12,7%. Today, Indonesia's Health Department estimated about 90-100 new cases per 100.000 cases of cervical cancer. According to GLOBOCAN 2012, cervical cancer is the third most common cancer in woman worldwide and the fifth most common cancer globally.[3]

Cervical cancer is the most common malignancy in women. Moreover, it is responsible for 85% death among women in developed countries. For over than 70 years, Cervical intraepithelial neoplasia had been known as an early phase of cancer; therefore if an effective screening and treatment are well-implemented, this program will decrease the incidence and mortality of cervical cancer significantly. However, the standard strategy to prevent cervical cancer as known as cervical cytology, HPV (Human Papilloma Virus) test, and colposcopy cannot be done in developed countries because of economic problem and other infrastructure problem. An effective screening strategy is tough to achieve a conclusion because of the difference between the availability of health resource and health problem among each country. However, we have to find a solution for cervical cancer screening in health service systems where cytology-based screening and colposcopy are not feasible. Clinical approach and testing of cervical cancer screening are necessary.[4-7]

Globally, the rate of cervical cancer is 12%, and cervical cancer became the fourth most common cancer after breast cancer, lung cancer and colon cancer. In developed countries, cervical cancer is the most common female cancer. In fact, it occurs in more than 85% of women.[4,5]

METHODS

This study is a descriptive study to find out Pap smear cytology results in patients who have performed visual inspection of acetic acid in PHC for early detection of cervical cancer. This research was done in 3 PHCs (Tikala Baru, Tuminting and Paniki), which appointed by Manado Health Department because they have certified general practitioner, nurse, and midwives for VIA examination. The Pap smear examination was performed by researchers and VIA performed by certified paramedics using tools, equipment, available at the PHC without intervention.

The Pap smear examination was performed by researchers first and continue VIA performed by certified paramedics.

RESULTS

We recruited 55 subjects. There were 15, 5, and two subjects with VIA positive, Pap smear with LSIL (3 women with VIA positive, two women with VIA negative).

Table 1. Distribution of Number of Subjects and Results of Examination Based on PHC.

Examination	Primary Healthcare Centre					
	Tikala Baru		Tuminting		Paniki	
	n	%	n	%	n	%
VIA						
Positive	13	52	2	9.52	0	0
Negative	12	48	19	90.48	9	100
Total	25	100	21	100	9	100
Pap Smear						
Dysplasia	4	16	1	4.76	0	0
Normal	21	84	20	95.24	9	100
Total	25	100	21	100	9	100
Total Samples	25	45.45	21	38.18	9	16.37

The number of 55 women came from 3 PHCs, Tikala PHC has the highest number of 25 women (45.45%), with the highest number of VIA Positive 13 (52%) women, and the number of Pap smears with the highest number of dysplasia four women (16%).

Table 2. Distribution of VIA Observer at Puskesmas

Primary Health Care	Observer		
	Doctor	Midwife	Nurse
TikalaBaru	0	1	1
Tuminting	1	2	0
Paniki	0	1	0
Total	1	4	1

Distribution of health personnel trained to perform VIA in PHC consists of doctors, midwives or nurses. Most of the trained health workers from these 3 PHCs are midwives who have been trained.

Table 3. Overview of VIA Examination Results with Pap Smear.

VIA	Pap's Smear			Total
	LSIL	HSIL	Normal	
Positive	3	0	12	15
Negative	2	0	38	40
Total	5	0	50	55

Table 4. Comparison of VIA Examination Results with Dysplasia on the Pap Smear Results.

VIA	Pap's Smear		Total
	Dysplasia	Normal	
Positive	3	12	15
Negative	2	38	40
Total	5	50	55

From 55 samples, 15 patients with VIA positive and 40 VIA negative results. From 15 women with VIA positive results obtained 3 LSIL (dysplasia) from pap smears test. In women with negative VIA 2 women were found with LSIL (dysplasia) results. No HSIL result was found.

DISCUSSION

This study is held in three primary health care that appointed by Manado Department of Health; those are primary health care Tikala aru, primary health care Tuminting, and primary health care Paniki. Those primary health care are already trained some health worker to build a team to do the VIA test. In this study, the VIA test is examined by one doctor, one nurse and four midwives. The instruments and the schedule for the VIA examination are available in every single primary health care. Even cryotherapy is available in primary health care in Tikala Baru.

In this study, to get the adequate and valid result, Pap Smear is done by researchers and examined in anatomy pathology laboratory by anatomical pathology specialist. Based on some study that had been done in some other place, there should be no significant difference between the result of VIA test and Pap smear; however, a direct biopsy is the "Gold standard" examination.[8,9]

In this research (Table 1) 25 (45.5%) samples are taken from PHC in Tikala Baru, with VIA positive result, 13 (52%) women. From 13 women with VIA positive, we found three women with LSIL in Pap smear examination. Moreover, we found one patient with LSIL (Pap smear result) from the 13 patients with VIA negative. There is 21 (38.18%) research subject in PHC Tuminting. We found 2 (9.52%) patients with VIA positive result, and after the Pap smear examination, there is no LSIL and HSIL. We found one patient with LSIL from 19 patients with VIA negative. The examination of 9 research subject in PHC in Paniki, we found a VIA negative and no abnormalities in Pap smear examination. This result indicates that we will still found false positive if we use Pap Smear results as the reference. Every PHC will show the number of different false positive depends on the examiner.[9,10]

From the data above, every PHC got many false positive if Pap smear used as a reference, all kind of examination above is done by trained health personnel in each PHC. The results of this research (Table 1.2.) the number of examiners from 3 PHC are six persons consisting of one doctor, four midwives and one nurse. According to 5 years research that ministry of health held with JHPIEGO, not always VIA test result is confirmed by the doctor nor assumed that doctor is more accurate than midwife in PHC in Indonesia. From time to time, the result of the research will be more accurate. So that, the examination of VIA test should have an adequate accuracy because the personnel healthcare is already trained.[10]

The treatment of VIA-positive in primary health care in Manado is cryotherapy procedure to those who fulfill the terms and condition. Every patient with VIA positive will go through the counselling to be informed about the cryotherapy procedure. Cryotherapy does not perform immediately in one day, cause the procedure need preparation such as the availability of CO2, informed consent from

husband or family and the lack of trained doctor/ medical specialist to perform the cryotherapy procedure so that we need to arrange the schedule for the procedure. Before performing the cryotherapy procedure, the VIA test is repeated by a certified general practitioner/medical specialist, different knowledge and experience between the health worker will cause a negative result or did not fulfill the terms and condition of cryotherapy. Therefore the confirmation by a certified general practitioner/medical specialist is a necessary thing to reduce the number of false positive in primary health care.[1,10]

There have been many studies that consist the comparison between the accuracy, sensitivity, and specificity of VIA test and Pap smear and the result is those two tests had no significant difference, for example, a meta-analysis conducted by Mustafa et al 2016, obtained that VIA test with 77% sensitivity, 82% specificity and Pap Smear sensitivity 84%, specificity 88%. In this study, 15 women with VIA positive only three women with Pap Smear result is LSIL. If Pap smear cytology examination which is performed by anatomical pathology specialist is used as a reference, then it shows very high false positives on VIA examination conducted by primary health care. The examination at primary health care will still be re-visualized before cryotherapy. Hopefully, the accuracy level in this VIA examination will get better eventually. However, the problem of the patients with VIA negative is there are two patients with LSIL cytology results. Eventually, this patient will pass the screening examination. Therefore it is necessary to look for factors that can decrease the accuracy level of VIA examination in Primary health care.[8,10]

The outcome of VIA test and Pap smear examination is those examinations should not have a significant difference, there will be some factors that need to be evaluated furthermore to increase the accuracy of VIA test. All VIA examinations procedure in this study is done by a health worker at primary health care, using the sites, materials, and equipment that is available at the public centre of health. Some of the factors that can induce false positives, including a light source, inflammation, infection, metaplasia, acetic acid concentrations, and the ability of the ace to white assessment to the examiner.[10,11]

The ability of VIA assessments by health workers is related to training and experience in conducting VIA. Examination of VIA conducted by primary health care before cryotherapy will be confirmed again by doctor/specialist of cryotherapy. According to research on "Cervical and Breast Cancer Prevention" (CECAP) program in collaboration with JHPIEGO which is a research to get the pattern or model in the current VIA program, the false rate in the positive VIA reaches 70.6% in the first 6 months, and after approaching 5 years decrease to 20.3%. Therefore, using only the training as the main learning is not enough, every trained health worker needs to be guided and assisted so that the level of sensitivity and specificity will be better.[10]

The targeted number of risk women in Manado who need screening is 64.214 women, in 2017, only 3% of the women underwent VIA test. Therefore, the PHC became the first to be the early detection of cervical cancer with a simple, inexpensive and immediate VIA examination.

CONCLUSION

Based on research result from 3 primary health care (Tikala Baru, Tuminting, and Paniki) in 55 women, the research subjects obtained VIA positive 15 samples (27.27%) and negative 40 samples (72.73%).

VIA test that conducted at primary health care and Pap smear in this study still has a difference in outcome, with 15 persons with VIA positive only 3 (20%) having dysplasia features in the Pap smear, and in 40 individuals with VIA - negative patients, there were 2 (5%) patients with dysplasia on the Pap Smear.

If the Pap smear is the reference/standard, there should be an evaluation and additional training for certified health personnel for VIA examination at primary health care. Research using direct biopsy using colposcopy as a gold standard needs to be done to evaluate the results of VIA examination at PHC in Manado. Research with more samples to assess sensitivity, specificity, and accuracy VIA examination in Manado needs to be done to obtain better validity.

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