DOI Number: 10.37506/v20/i1/2020/mlu/194346

The Discovery of Comorbidity Deviation in the Cervical Cancer Patients Treated by the *Intravenous Pyelography* Examination and Clinical Examination (Based on *Federation Internationale de Gyneclogie et d'Obstetrique*)

Kristina Puji Rahayu[1], Budi Laraswati[1]

[1]Department of Radiology, Faculty of Medicine, Universitas Airlangga, The General Hospital of Dr. Soetomo, Surabaya, 60285, Indonesia, [2]Department of Radiology, Faculty of Medicine, Universitas Airlangga, The General Hospital of Dr. Soetomo, Jl. Mayjen Prof Dr. Moestopo 47, Surabaya, 60285, Indonesia

Abstract

Objective: The cervical cancer is the most found cancer in the gynecological malignancy. Several cervical cancer cases sometimes are found the result of *Intravenous Pyelography* examination that is not suitable with the clinical stage that has been examined according to *Federation Internationale de Gynecologie et d'Obstetrique*. Another deviation that accompanies the cervical cancer cases is very important for clinicians and the patients because of the distinct deviation managements. The utilization of other modalities in supporting the other deviations needs to be considered so that the patient service will be better and more accurate as it is expected by the clinicians and the patients.

Aim: This study aims to identify comorbid abnormalities in cervical cancer patients undergoing Intravenous Pyelography examinations and clinical examinations according to FIGO.

Method: The retrospective research is applied from the medical records of the cervical cancer patients in stage IA IVB on January until December 2014 and it is analyzed statistically.

Result: From 131 samples, it is obtained 77 samples which are qualified the inclusion criteria. There are 48 samples (62,3%) which are resulted to normal IVP and 29 abnormal samples (37,7%). It is also revealed that there are comorbidity deviation in 14 patients (18,2%).

Conclusion: From the result of *intravenous pyelography* examination, it is found that several comorbidity deviations based on the result of BUN/creatinine and clinical examination of *Federation Internationale de Gynecologie et d'Obstetrique* should not be found any deviation. Regarding these results, the clinicians therefore can consider the next management for the patients.

Keywords: *Intravenous Pyelography, Federation Internationale de Gynecologie et d'Obstetrique, cervical cancer*

Background of the Study

Cervical cancer is still the main health problem in the world, ranks third most after breast cancer (1.38 million cases) and colorectal cancer (0.57 million cases), and is the fourth leading cause of death after breast cancer (458,000 deaths), lung cancer (427,000 deaths), and colorectal cancer (288,000 deaths) [1]. An estimated 740 cases of death occur due to cervical cancer [2]. Cervical cancer is a leading cause of death for women throughout the world [3]. In ASEAN, the mortality rates of several countries that still have high cervical cancer rates include Cambodia, Myanmar and Laos [4]. In Indonesia, cervical

Corresponding author:
Budi Laraswati
Department of Radiology, Faculty Of Medicine, Universitas Airlangga, The General Hospital of Dr. Soetomo, Jl. Mayjen Prof Dr. Moestopo 47, Surabaya, 60285, Indonesia, Email: budilaraswati1@gmail.com

cancer still occupies the first position, followed by breast cancer and skin cancer, while in gynecological cancer, cervical cancer is the most frequent cancer, followed by ovarian cancer, endometrial cancer, vulva and vagina.

According to FIGO, cervical cancer can spread into the parametrium, vagina, uterus and other surrounding organs [5]. In some cases of cervical cancer that is found with a certain stage accompanied by concomitant diseases causing impairment of kidney function not in accordance with the clinical stage so that it will change the management of therapy in patients. For example cervical cancer with ureteral stones, cervical cancer with diabetic nephropathy or cancer with other disorders. These abnormalities can be detected by conducting an Intravenous Pyelography (IVP) examination. IVP examination is carried out as one of the investigations to detect various disorders of the urinary tract caused by infiltration from cervical cancer. Abnormalities in the urinary tract that are found after IVP examination still require another radiological examination to confirm the diagnosis.

Some studies suggest that the survival rate in cervical cancer patients who have comorbidities is low, although the mechanism is unknown [6]. This study aims to identify comorbid abnormalities in cervical cancer patients undergoing Intravenous Pyelography examinations and clinical examinations according to FIGO.

Method

This study employed the retrospective and descriptive research and used the medical record as the secondary data. This study used the samples of the cervical cancer patients who were treated in the POSA Obsgyn RSUD Dr. Soetomo and the polyclinic of Obstetrics and Gynecology Graha Amerta Surabaya, who were also examined by the cervical cancer histopathology and creatinine serum and underwent the Intravenous Pyelography examination in the radiology section in the Centre Diagnosis Building and the Emergency Department in Dr. Soetomo General Hospital starting January 2014 until December 2014. The sample collection technique employed the total sampling method.

These are the research criteria:

Inclusion criteria:

a. The cervical cancer patients stage IA-IVB

b. The cervical cancer patients stage IA-IVB with comorbidity diseases

c. Have done the examination of cervical tumor tissue histopathology

d. Have done the examination of creatinine and urea

e. Have done the examination of *Intravenous Pyelography*

The exclusion criteria: patients who are and have been doing the chemo radiation

This study enrolled two variables research, which are the clinical stage that is written by clinicians based on FIGO as an independent variable, and the result of *Intravenous Pyelography* examination as dependent variable.

This study is started with the data collection that is taken from the IVP examination result and the clinical stages based on FIGO. All the records is submitted to be processed in the data tabulation and statistical analysis. The statistic assessment is processed with the SPSS software. Ethically, the researcher has given the ethical clearance permission from ethics commission of medical research of Dr. Soetomo general hospital.

The Result of the Study

In this study, it is found that there are 77 people but 54 people are excluded. The patients who were excluded are because 41 persons have not done the histopathology examination and 13 persons have done chemotherapy.

Table 1. Demographic data of respondents

	Frequency	Percentage (%)
Age (year)		
<30	1	1.3
31-40	8	10.4
41-50	41	53.2
51-60	24	31.2
61-70	2	2.6
>70	1	1.3
Stadium		
IA	8	10.4
IB	20	26.0
IIA	14	18.2
IIB	18	23.4
IIIA	1	1.3

***Cont...* Table 1. Demographic data of respondents**

IIIB	15	19.5
IVA	1	1.3
Cervical cancer stadium		
Early	42	54.5
Advanced	35	45.5

The Sample Distribution Based on Ages

In this study, the patients who are used as the research samples have the age range between 29 – 74 years old with the average age between 48.92 ± 8.07 years old These are the data distributions based on ages: under 30 years old is 1 person (1,3 %); 31-40 years old are 8 persons (10,4%); 41- 50 years old are 41 people (53,2 %); 51-60 years old are 24 persons (31,2 %); 61-70 years old are 2 persons (2,6%); above 70 years old is 1 person (1,3%). However, the samples that are used are the patients between 41- 50 years old. The patient distributions that are used as the samples based on ages can be seen in Table 1.

The Profile of the Samples Based on the Disease Stages

Based on the result of data analysis, it is found that the cervical cancer patients stage IA are 8 persons (10,4%), stage IB are 20 persons (26 %), stage IIA are 14 persons (18,2 %), stage IIB are 18 people (23,4 %), stage IIIA is 1 person (1,3 %), stage IIIB are 15 persons (19,5%) and stage IVA is 1 person (1,3%). The most frequent cervical cancer patient is on their stage IB. The data distribution of the patients based on the stages can be seen in Table 1.

The cervical cancer stages can be distinguished into the early stage and advanced stage. The early stage consists of stage IA, IB and IIA whereas the advanced stage consists of stage IIA, IIIA, IIIB, IVA, and IVB. Based on the above criteria, the most frequent sample of the early stage cervical cancer are 42 persons (54,5 %) and the rest is the advanced stage cervical cancer patients that are 35 persons (45,4 %). The data distribution of patients based on the two stages can be seen in Table 1.

The Sample Profile Based on the Histopathology Conception

Based on the histopathology profile of cervical cancer patients that is used as the sample is the most frequent conception is Squamous cell carcinoma which are 54 persons (70,1%). The conception of Adenocarcinoma histopathology in carcinoma cell are 17 persons (22,1%). The conception of combination histopathology is Adenosquamous cacrcinoma cell are 6 persons (7,8 %) (Table 2).

Table 2. The Sample Profile Based on the Histopathology Conception

Hispathology	Frequency	Percentage
Squamous cell carcinoma	54	70,1
Adeno cell carcinoma	17	22,1
Adenosquamous cell carcinoma	6	7,8
Total	77	100

The Sample Profile Based on the Intravenous Pyelography Examination Result

The data profile of the *intravenous pyelography* examination (IVP) result based on the normality of the histopathology conception is found that the most normal IVP examination results are 48 persons (62,3 %). The result of IVP examination that are not normal are 29 persons (37,7%).

On the other hand, the result that is obtained in the IVP profile based on the IVP result conception in detail stated if the most IVP examination result is normal that are 47 persons (61 %),, while one person is indicated with bladder indentation. The results of IVP examination which are not normal with the hydronephrosis conception are 9 persons (11.7 %). The results of IVP examination that are not normal with the delay function conception are 5 persons (6.5 %). The results of IVP examination which are not normal with non-visualized conception are 4 persons (5.2 %).

The results of the abnormal IVP examination with bladder nuisance are 2 persons (2.6 %) The results of the abnormal IVP examination with the hydronephrosis and hydroureter are 3 persons (3.9 %). The abnormal result of IVP examination with hydronephrosis and non-visualized conception is 1 person (1.3 %). The abnormal result of the IVP examination with hydronephrosis, delay function, and hydroureter is 1 person (1.3 %).

The abnormal results of the IVP examination with hydronephrosis, delay function, and non-visualized conceptions are 2 persons (2.6 %). The abnormal result of

the IVP examination with hydronephrosis, hydroureter, and non-visualized is 1 person (1.3 %). The abnormal result of the IVO examination with the hydronephrosis, hydroureter conception and bladder nuisance is 1 person (1.3 %).

The Descriptive Analysis of the Relation among the Examination Results

Based on the data analysis, it is revealed that the result of IVP examination that is suitable with the clinical stages according to FIGO are 63 (81,8%), while those that are unsuitable are 14 (18,2%). The result of the descriptive analysis is suitable with the result of the IVP examination result with clinical stages of FIGO (Table 3).

Table 3. The Compatible Result of IVP Examination with the Clinical Stages Based on FIGO

No	Clinical Stages	BUN/ Creatinine serum	IVP result	Comorbidity Deviations	Information
1	IB	Normal	Normal	-	Compatible
2	IB	Normal	Normal	-	Compatible
3	IB	Normal	Normal	-	Compatible
4	IIIB	Normal	Non Visualized Right Non Visualized	-	Compatible
5	IIIB	Normal	Delay Function left	-	Compatible
6-	IIIB	Normal	Right Hydronephrosis grade 3	-	Compatible
7	IIIB	Normal	Left Hydronephrosis grade 1	-	Compatible
8	IIIB	Normal	Right delay function	-	Compatible
9	IIIB	Normal	Right Delay function	-	Compatible
10	IB	Normal	Normal	-	Compatible
11	IB	Normal	Normal	-	Compatible
12	IB	Normal	Normal	-	Compatible
13	IIB	Normal	Normal	-	Compatible
14	IIB	Normal	Normal	-	Compatible
15	IIB	Normal	Normal	-	Compatible
17	IIA	Normal	Normal	-	Compatible
18	IIA	Normal	Normal	-	Compatible
19	IIIB	Normal	Normal	-	Compatible
20	IIIB	Normal	Right Hydronephrosis grade 2	-	Compatible
21	IIIB	Normal	Hydronephrosis + Delay function + left Hydroureter	-	Compatible
22	IIIB	Normal	Hydronephrosis + Delay function + left Non visualized	Stone Bladder	Compatible
23	IIIB	Normal	Hydronephrosis + Right Hydroureter	-	Compatible
24	IIIB	Normal	Left non visualized	-	Compatible
25	IIA	Normal	Normal	-	Compatible
26	IIA	Normal	Normal	-	Compatible
27	IIA	Normal	Normal	-	Compatible
28	IIB	Normal	Normal	-	Compatible
29	IIB	Normal	Normal	-	Compatible
30	IIB	Normal	Normal	-	Compatible
31	IIB	Normal	Normal	-	Compatible
32	IIA	Normal	Normal	-	Compatible
33	IIA	Normal	Normal	-	Compatible

Cont... **Table 3. The Compatible Result of IVP Examination with the Clinical Stages Based on FIGO**

34	IIA	Normal	Normal	-	Compatible
35	IIB	Normal	Normal	-	Compatible
36	IIIB	Normal	Hydronephrosis grade 2 + Hydroureter + Right non visualized	-	Compatible
37	IIIB	Normal	right Hydronephrosis grade 2	Multiple stone kidney,	Compatible
38	IIIB	Normal	Right non-visualized	-	Compatible
39	IIA	Normal	Normal	-	Compatible

In this study, it is found that there is an incompatibility between the IVP examinations compared to the clinical stages of FIGO. It happened because there is the comorbidity deviation so the IVP examination which must be on the early stage, it resulted in the normal IVP result. . The examination of IVP with abnormal result on the early stage of cervical cancer in this study is caused by the emergence of comorbidity deviations such as: ureteral stone, uterine myomas, ovarian cystoma, Non Hodgkin Lymphoma, adenomyosis uteri, endometritis, Gastro-Intestinal stromal tumor, and bilateral ovarian cysts.

Discussion

The results of the IVP examination showed normal results in most samples. In detail, the results of the patient's IVP examination show compliance with the clinical stage based on FIGO. In the results of IVP examinations that are not in accordance with the clinical stage of FIGO, there are accompanying abnormalities as mentioned previously.

In general, the results of IVP examination in patients with early stage cervical cancer are normal, and will only show an abnormal picture at an advanced stage [5,7]. The picture can be in the form of non-visualized, delay function, hydronephrosis, hydroureter or bladder disorders. There are two possibilities of abnormal but still appropriate stadium; and not normal but not according to stage if cervical cancer is accompanied by accompanying abnormalities.

Based on FIGO, IVP abnormalities can be found in advanced cervical cancer stage III and IV. This is because at that stage cancer cells begin to invade the lower third of the vagina and / or spread to the pelvic wall, and / or cause hydronephrosis or impaired kidney function. In stage IV, cancer cells spread beyond the pelvis or have invaded the bladder and rectum mucosa [5,7].

Accompanying disorders that are found based on IVP examination are abnormalities that should not be found on BUN / Creatinine examination and FIGO clinical stage including early stage cervical cancer (I-II) [5,7]. With the discovery of comorbid disorders, clinicians are expected to be able to adjust the treatment regimen to these comorbidities. In addition, the use of IVP as an option for supporting examinations can be done if the facilities in the hospital are inadequate.

Conclusion

From the result of *intravenous pyelography* examination, it revealed that the comorbidity deviations are found in 14 patients (18,2 %). However, seeing the result of BUN/creatinine and clinical examination based on *Federation Internationale de Gynecologie et d'Obstetrique,* there must not be any abnormalities.

Conflict of Interest: The author reports no conflict of interest of this work.

Source of Funding: This study is done with individual funding.

Ethical Clearence: The research process involves participants in the survey using a questionnaire that was accordant with the ethical research principle based on the regulation of research ethic committee. The present study was carried out in accordance with the research principles. This study implemented the basic principle ethics of respect, beneficence, non-maleficence, and justice.

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