

The Most Common Type of HPV in Women with Atypical Squamous Cell of Undetermined Significance (ASCUS) in Pap Smear in Iran-Yazd

Mojgan Karimi-Zarchi¹, Afsarosadat Tabatabaie², Alie Dehghani-Firoozabadi³, Farima Shamsi⁴, Maleknaz Baghianimoghaddam⁵, Mandana Dargahi⁶, Pouria Yazian⁷, Shahnaz Mojahed⁸

¹Associate prof, Gynecological Oncology fellowship, Clinical research development, Shahid Sadoughi University of Medical Science, Yazd, Iran; ²Associate prof, Obstetrics & Gynecologist, Shahid Sadoughi University of Medical Science, Yazd, Iran; ³Obstetrics & Gynecologist, Shahid Sadoughi University of Medical Science, Yazd, Iran; ⁴Epidemiologist, Shahid Sadoughi University of Medical Science, Yazd, Iran; ⁵General physician, Shahid Sadoughi University of Medical Science, Yazd, Iran; ⁶Pathologist, Azad University of Medical Science, Yazd, Iran; ⁷Medical Student, Student Research Committee, Shahid Sadoughi University of Medical Sciences, Yazd, Iran; ⁸School of Nursing and Midwifery, Shahid Sadoughi University of Medical Sciences, Yazd, Iran

ABSTRACT

Introduction: Cervical cancer is the third most gynecological cancer and one of the common causes of cancer death in women in Iran and the other developing countries. Human Papilloma Virus (HPV) is a known Risk factor in cervical cancer, but according to HPV deference types, the high risk and low risks differ.

Material and method: We evaluate the most common high risk and low risk HPV type in 180 females with an atypical squamous cells of undetermined significance (ASCUS) results in pap smear in Gynecological Oncology Clinic in Shahid Sadoughi Hospital in Yazd, Iran within 2012 to 2014. HPV typing was done with polymerase chain reaction (PCR) method. The data obtained were recorded in a questionnaire and analyzed by SPSS software.

Result: More common low risk HPV type in ASCUS patients was type 6 (63.6%) and then type 11 (36.4%). Type 16 was the most common high risk HPV type

Discussion: HPV DNA typing for better management of women With ASCUS is important and this study showed HPV type 16 is the most prevalent type in ASCUS patients. It seems the living region is important in HPV type distribution and Quadri-valant Vaccine can prevent cervical cancer in Iran because the most common low risk HPV is type6 and 11, and HPV 16 is the most common high risk HPV.

Conclusion: In Iran there are not many patients with cervical cancer but we have advanced cervical cancers. Also without mass screening program and primary vaccination the researchers worry about increasing of incidence of cervical cancer in younger women. This study showed the similar type of high risk HPV in abnormal pap test and then vaccination plus routine pap test can decrease new cervical cancer in Iran as a developing country. (*Int J Biomed Sci* 2015; 11 (4): 173-175)

Keywords: HPV; high risk; low risk; cervical cancer; atypical squamous cells of undetermined significance; management; prevention

Corresponding author: Shanaz Mojahed, Nursing and Midwifery, Shahid Sadoughi University of Medical Sciences, Yazd, Iran. Tel: +98-351-824-1751, Fax: +98-351-824-9705, E-mail: mojahed@ssu.ac.ir, sh_mojahed@yahoo.com.

Received October 6, 2015; **Accepted** November 30, 2015

Copyright: © 2015 Mojgan Karimi-Zarchi et al. This is an open-access article distributed under the terms of the Creative Commons Attribution License (<http://creativecommons.org/licenses/by/2.5/>), which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.

INTRODUCTION

Cervical cancer is the fourth most common cancer in women and near 7.5% death from cancer in females is due to cervical cancer worldwide (1-2).

Risk factors such as early age marriage, poor sexual hygiene, using hormonal contraceptives, sex working and... are important in cervical cancer incidence (3). In past decay, researchers work on "if the HPV infection sufficient factor in cervical cancer disease?" but it seems that this factor is necessary nor sufficient.

De Villiers EM explained more than 118 types of HPV that near the 40 types can infect the genital mucosa (4).

Different genotypes of the virus, based on ability to change the tissue as cancer, is divided into two categories: high and low risk. More common low risk types are HPV 11 and 6 that cause condyloma accuminata and benign genital warts. In high risk groups, HPV 16 and 18 are common as the etiology of cervical cancer (5).

This short paper is a part of a cohort study that explain the common HPV types in ASCUS patients in IRAN.

MATERIAL AND METHOD

A clinical trial study was conducted among 180 female with an ASCUS results in pop smear. Patient selected randomly from women referred to Shahid Sadughi gynecologic clinic.

Patients with cervical cancer, were excluded from the study. Demographic data and patient's medical history collected in a questionnaire. After getting informed consent, a sample was prepared for HPV reflex. HPV typing was done with PCR method, by single Laboratory and technique.

All patients, were called for repeating pop smear and biopsy for further research.

The collected data analyzed by SPSS21 software.

RESULTS

180 patients enrolled in the study.

More common low risk HPV type in ASCUS patients was type 6 (63.6%) and then type 11 (36.4%).

Type 16 as the more common high risk HPV type was in 79.3% of patient and then respectively were Type 31 (8.6%), 45 (6.9%), 18 (3.4%) and 59 (1.7%) (Table 1).

After biopsy there was no association between biopsy result and HPV typing ($p=0.095$) (Table 2).

DISCUSSION

HPV infection is an Important risk factor for cervical cancer as is seen in 99% of CC patients (2, 6-8, 15, 16).

Our cases came from the group were referred to a gynecologist because of the previous ASCUS result in PaP smear.

Table 1. Distribution of HPV sample

HPV typing		Number	
Low risk	6	7	3.8
	11	4	2.2
Total		11	6.11
	16	46	25.55
High risk	31	5	2.7
	45	4	2.2
Total	18	2	1.1
	59	1	0.55
Total		58	32.22
	No HPV		111
Total		180	61.66
			100

Table 2. Associateion of biopsy result and HPV typing

		HPV typing		Total
		High risk	Low risk	
Biopsy typing	CIN	16	5	21
	cancer	0	1	1
Total		16	6	22

Studies have shown, type 16 is common, more than 60% in CC. In other steps, type 18, 45 and 31 respectively, are 10-15%, 7% and 3% of HPV infection in CC patients (9-10, 17, 18).

Our study shows, type 16 is more common high risk type as others in ASCUS patients [then 31, 45 and 18]. In the more similar study done by Clifford GM, the prevalence of HPV 16 in ASCUS patients was 31% that in our study was 25.5%. Consistent with other studies, HPV type 16 is the most common type in our specimens (10).

Wei H found 8.8% of LR-HPV in ASCUS patients (11) and Nielsen found 33.1% in such patients (12). Martin Pis showed, type 6 with 9.9% and type 11 with 3.9% in ASCUS patients (13). In our study, 6.11% LR-HPV was found in ASCUS patient that type 6 was 3.8% and type 11 was 2.2%.

As is seen, our results are near other studies. The present differences are contributed to differ epidemiological pattern in different region. Also the used primer system is important too. For example The GP5+/6+ primer set is less sensitive for HPV 53 detection, whereas MY09/MY11 is less sensitive for HPV 31 (13).

In Iran we don't have many cases of cervical cancer but we have women with advanced cervical cancer because we don't have mass screening program and vaccination isn't as a routine primary prevention for all of girls within 9-26 years. Thus increasing knowledge of women for primary prevention and vaccination by quadrivalent (Gardasil) Vaccine can decrease cervical cancer (15-18). This paper help us for approval of this point that HPV type of 6,11 as low risk HPV and HPV 16 is the most common type of High risk HPV that is similar to the other part in the world

REFERENCES

1. Ferlay J, Shin HR, Bray F, Forman D, *et al.* Estimates of worldwide burden of cancer in 2008: GLOBOCAN 2008. *Int. J. Cancer.* 2010 Dec 15; 127 (12): 2893-2917.
2. Ferlay J, Steliarova-Foucher E, Lortet-Tieulent J, Rosso S, *et al.* Cancer incidence and mortality patterns in Europe: estimates for 40 countries in 2012. *Eur. J. Cancer.* 2013 Apr; 49 (6): 1374-1403.
3. Bosch FX, Munoz N, De Sanjosé S, Izarzugaza I, *et al.* Risk factors for cervical cancer in Colombia and Spain. *International Journal of Cancer.* 1992; 52 (5): 750-758.
4. De Villiers EM, Fauquet C, Broker TR, Bernard HU, *et al.* Classification of papillomaviruses. *Virology.* 2004; 324 (1): 17-27.
5. Gross G, Pfister H. Role of human papillomavirus in penile cancer, penile intraepithelial squamous cell neoplasias and in genital warts. *Medical microbiology and immunology,* 2004; 193 (1): 35-44.
6. Parkin DM, Pisani P, Ferlay J. Global cancer statistics. *CA Cancer J. Clin.* 1999; 49: 33-64.
7. Mahmud SM, Franco EL. An overview of epidemiological and public health research on HPVs presented at the 21st International Papillomavirus Conference in Mexico City, 20-26 February 2004. *Papillomavirus Rep.* 2004; 15: 121-123.
8. Walboomers JM, Jacobs MV, Manos MM, Bosch FX, *et al.* Human papillomavirus is a necessary cause of invasive cervical cancer worldwide. *J. Pathol.* 1999; 189: 12-19.
9. Clifford GM, Smith JS, Plummer M, Munoz N, *et al.* Human papillomavirus types in invasive cervical cancer worldwide: a meta-analysis. *Br. J. Cancer.* 2003; 88: 63-73.
10. Bosch FX, de Sanjose S. Chapter 1: Human papillomavirus and cervical cancer—burden and assessment of causality. *J. Natl. Cancer Inst. Monogr.* 2003; 31: 3-13.
11. Wei H, Wang N, Zhang Y, Zhang J, *et al.* Distribution of various types of low-risk human papillomavirus according to cervical cytology and histology in northern Chinese women. *International Journal of Gynecology & Obstetrics.* 2014; 126 (1): 28-32.
12. Nielsen A, Iftner T, Nørgaard M, Munk C, *et al.* The importance of low-risk HPV infection for the risk of abnormal cervical cytology/histology in more than 40 000 Danish women. *Sexually transmitted infections.* 2012; 88 (8): 627-632.
13. Martín P, Kilany L, García D, López-García AM, *et al.* Human papillomavirus genotype distribution in Madrid and correlation with cytological data. *BMC infectious diseases.* 2011; 11 (1): 316.
14. Qu W, Jiang G, Cruz Y, Chang CJ, *et al.* PCR detection of human papillomavirus: comparison between MY09/MY11 and GP5+/GP6+ primer systems. *Journal of clinical microbiology.* 1997; 35 (6): 1304-1310.
15. Karimi Zarchi M, Akhavan A, Gholami H, Dehghani A, *et al.* Evaluation of cervical cancer risk-factors in women referred to Yazd-Iran hospitals from 2002 to 2009. *Asian Pac. J. Cancer Prev.* 2010; 11 (2): 537-538.
16. Karimi Zarchi M, Behtash N, Chiti Z, Kargar S. Cervical cancer and HPV vaccines in developing countries.
17. Karimi Zarchi M, Binesh F, Kazemi Z, Teimoori S, *et al.* Value of colposcopy in the early diagnosis of cervical cancer in patients with abnormal pap smears at Shahid Sadoughi hospital, Yazd. *Asian Pac. J. Cancer Prev.* 2011; 12 (12): 3439-3441.
18. Karimi Zarchi M, Akhavan A, Fallahzadeh H, Gholami H, *et al.* Outcome of cervical cancer in Iranian patients according to tumor histology, stage of disease and therapy. *Asian Pac. J. Cancer Prev.* 2010; 11 (5): 1289-1291.