High risk HPV infectious status in women with cervical intraepithelial neoplasia lesions and cervical cancer

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Introduction

- 1976, the relevance of HPV (Human Papillomavirus) and cervical cancer (CC) was first mentioned by Harald zur Hausen
- 30/140 HPV types have affinity with genital tract.
- Only 14 high risk HPV types can change epithelial cells and they are also the main cause of genital tract carcinoma in both men and women.

Introduction

- **1999: HPV testing was officially introduced as cervical cancer screening test.**
- **4/2014: The U.S. Food and Drug Administration (FDA) approved the Cobas HPV test for primary cervical cancer screening test in women aged 25 years and older.**

Objectives

Evaluation of the role of High-Risk HPV infection in women with cervical intraepithelial neoplasia lesions (CIN) or cervical cancer at National Hospital of Obstetric and Gynecology.

Study design

- **544 women with positive HPV test and/or abnormal cervical cytology were included in the study**
- **Duration period: 10/2015- 3/2017**
- **All patients will undergo colposcopy examination and biopsy if necessary.**

Study design

1. According to WHO Classification of Tumours of Female Reproductive Organs 2014, cervical lesions include:

- ✓ **Low-grade squamous intraepithelial lesion (LSIL)**
- ✓ **High-grade squamous intraepithelial lesion (HSIL)**
- ✓ **Squamous cell carcinoma**
- ✓ **Adenocarcinoma**

Study design

2. PAP: The 2001 Bethesda system

- **PAP (+) : ≥ ASCUS.**
- **PAP (-) : < ASCUS.**

3. HPV DNA: Detect HPV genotypes with The Roche Cobas 4800 HPV test method based on real-time PCR

- **HR HPV (+): positive result for ≥ 1 genotypes: 16,18,31,33,35,39,45,51,52,56,58,59, 66,68.**
- **HR HPV (-): HPV 16,18,31,33,35,39,45,51,52,56,58,59, 66,68 DNA undetected or under threshold**

Study design

4. Colposcopy : According to 2003 Colposcopic Terminology of the International Federation for Cervical Pathology and Colposcopy

- **Normal colposcopy findings: normal and benign lesions.**
- **Abnormal colposcopy findings: Fine mosaic; fine punctuation; thin acetowhite epithelium; dense acetowhite epithelium; coarse mosaic; coarse punctuation; fragile vessels, irregular surface, necrosis, ulceration and suspicious cancer invasion**

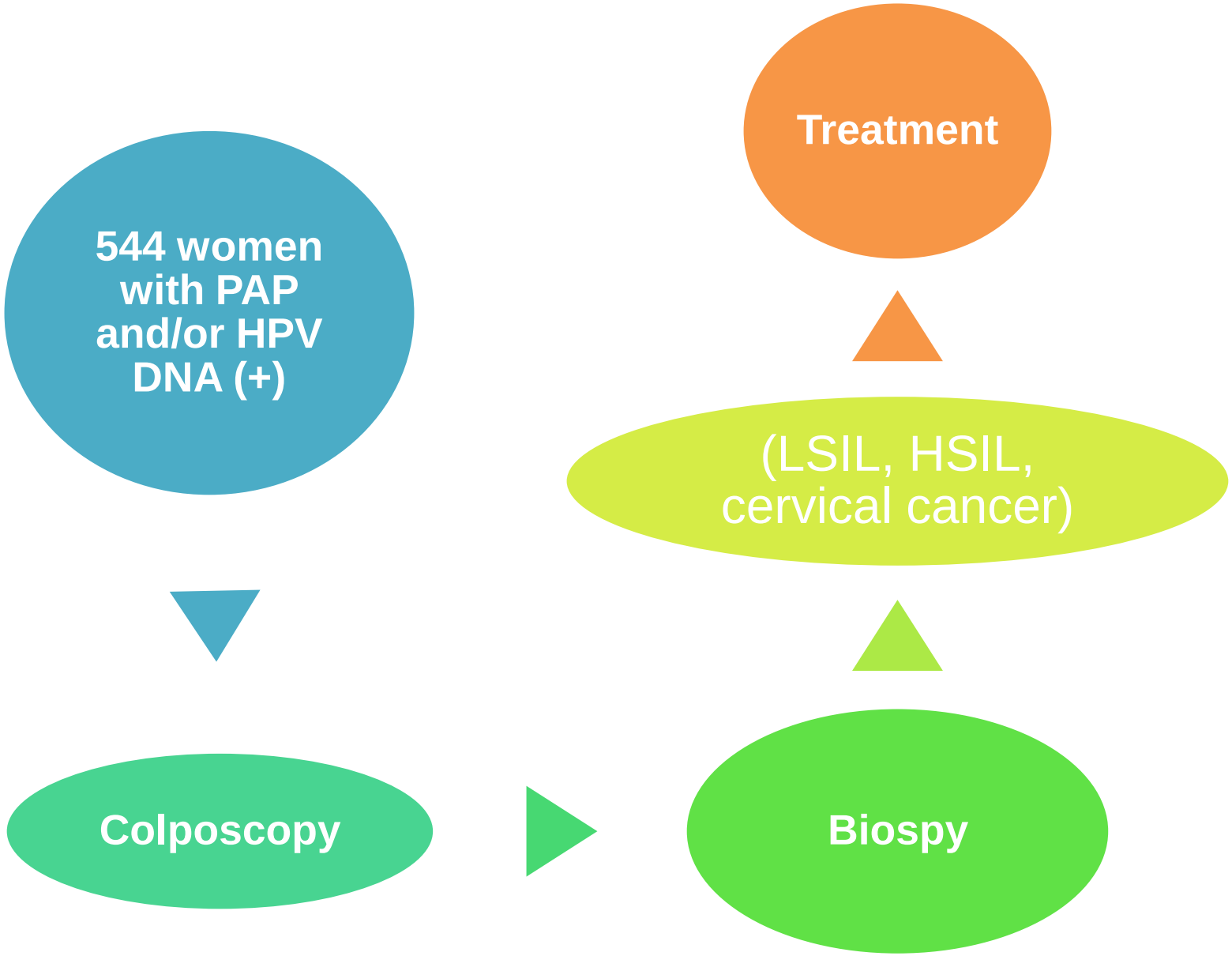
Study method

- **A cross-sectional study was performed to evaluate the causal relationship between the high-risk HPV infectious condition and the cervical intraepithelial neoplasia lesions (CIN) or cervical cancer**

Study method

- ✓ **Positive HPV test and/or cervical cytologic abnormalities → Colposcopy + biopsy + histological diagnosis.**
- ✓ **Abnormal histologic results → Appropriate treatment depends on the lesions**

4 main steps


544 women with PAP and/or HPV DNA (+)
Colposcopy
Biospy
(LSIL, HSIL, cervical cancer)
Treatment

Data Processing

❖ **SPSS 16.0 statistical *software:***

- *The percentages of patients with abnormal cervical lesions, odds ratio* (OR) to evaluate the causal relationship between the high-risk HPV infectious status and the cervical intraepithelial neoplasia lesions or cervical cancer
- *The prevalence* of cytologic abnormalities by age group and by HPV infection status group.

RESULTS AND DISCUSSION

Results

- **Average age: 39.2 yrs**

  Youngest: 19 yrs **Oldest: 67 yrs**

- **195 women have abnormal histologic results**
  - **LSIL: 74 patients**
  - **HSIL: 67 patients**
  - **Squamous cell carcinoma or adenocarcinoma: 54 patients**

Cervical abnormalities by age group

	≤24	25-34	35-44	≥ 45	Tổng
LSIL	1(1,4%)	28(37,8%)	31(41,9%)	14 (18,9%)	74
HSIL	1(1,5%)	13(19,7%)	31(47,0%)	21(31,8%)	67
Squamous cell carcinoma	1(2,2%)	9(19,6%)	19(41,3%)	17(36,9%)	46
adenocarcinoma	0	0	3(37,5%)	5(63,5%)	8

Discussion

❖ **The prevalence of LSIL and HSIL are both highest in the 35-44 age group and decrease gradually when over 45 yrs.**

❖ **In contrast, the percentage of invasive cancer has raised with increasing age (16,7%, 40,7% và 40,7% in the 3 age group 25-34, 35-44 and ≥ 45, respectively).**

❖ **This results were similar to the ATHENA study: cytologic abnormalities and high-risk HPV positivity declined with increasing age.**

Cervical abnormalities by HPV types group

	16	18	hrHPV	≥2 types	Total
LSIL	10	4	24	10	48
HSIL	18	7	16	13	54
Squamous cell carcinoma	18	5	14	6	43
adenocarcinoma	0	5	0	1	6
Total	46 (30,5%)	21 (13,9%)	54 (35,8%)	30 (19,8%)	151

Discussion

- **The prevalence of histologic abnormalities is 35,9% (195/544) which included 151 high-risk HPV infection cases (77.4%).**
- **The rate is high because all the cases had abnormal screening test (cytologic test or cobas HPV test). These patients were at high risk of precancerous lesions or cervical cancer.**

Discussion

❖12 types hrHPV accounted for the major part (35,8%). HPV 16 and 18 accounted for 30,5% and 13,9%. This results is similar to Le Quang Vinh study (62,79%, 23,26% and 13,9% respectively) and ATHENA study (12,6%, 2,8% and 1,0% respectively).

❖ The prevalence of women infected with 2 types HPV was 8% higher compared to Le Quang Vinh study.

Cervical abnormalities by hrHPV group

	hrHPV (+)	hrHPV (-)	Total
LSIL	48 (64,9%)	26 (35,1%)	74 (100%)
HSIL	54 (80,6)	13 (19,4)	67 (100%)
Cancer	49 (90,7)	5 (9,3%)	54 (100%)

Discussion

❖ **HrHPV – positive women have LSIL, HSIL and cancer accounted for increasing rate, 64,9%, 80,6% 90,7%, respectively. The results were similar to Nguyen Duc Hinh study and ATHENA research, the prevalence of invasive cervical cancer were 91% and 87,5% respectively.**

HPV and LSIL

HPV	LSIL	Normal	OR	95%CI
HPV (+)	48	127	3,2	1,91-5,45
HPV (-)	26	222	1	

- hrHPV-positive women have a significant higher risk of LSIL than hrHPV-negative women (OR 3,2) (95%CI, 1,91-5,45)

HPV and HSIL

HPV	HSIL	Normal	OR	95%CI
HPV (+)	54	127	7,3	3,82-13,52
HPV (-)	13	222	1	

- **hrHPV-positive women were at risk of HSIL 7.3 times higher than those without infection. The difference was statistically significant (95%CI:3,82-13,52).**

HPV and cervical cancer

HPV	Cancer	Normal	OR	95%CI
HPV (+)	49	127	16,1	6,23-41,52
HPV (-)	5	222	1	

- **hrHPV-positive women were at risk of CC 16.1 times higher than those without infection. The difference was statistically significant (95%CI: 6,23-41,52).**

Discussion

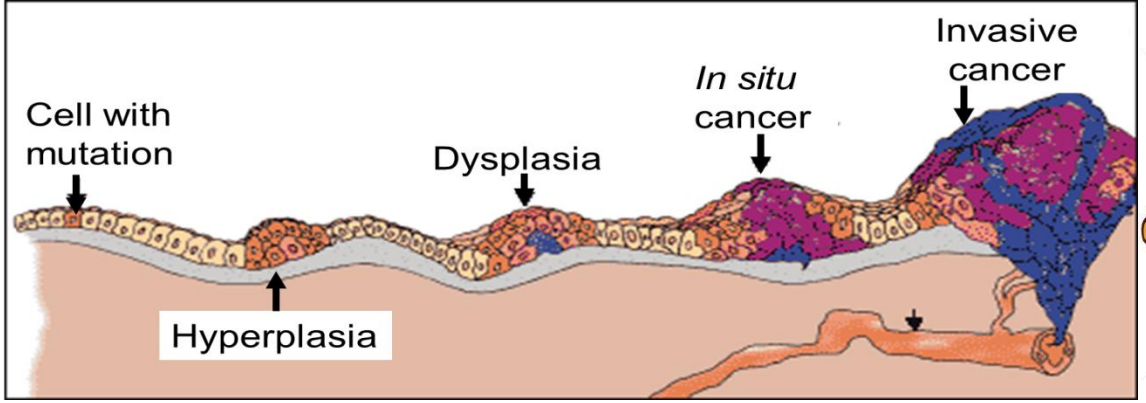
- A correlation was observed between the hrHPV infectious status, HPV types and cytologic abnormalities.
- There was a strong correlation between adenocarcinoma and HPV 18 infection. 6/8 cases of adenocarcinoma had Cobas HPV test positive with type 18.

Discussion

- **The results of our study are consistent with previous studies of Nguyen Duc Hinh, Le Quang Vinh and Schiffman.**
- **The causative role of hrHPV in nearly all cervical neoplasia and cervical cancer is firmly established. HPVs 16 and 18 account for approximately 70% of cervical cancers worldwide.**

5. CONCLUSION

- **the prevalence of LSIL and HSIL in women aged 44 and younger were 81,1% and 68,2% respectively, then declined to 18,9% and 31,8% in women older than 45yrs.**
- **The proportion of cervical cancer increased from 18.6% to 81.4% between women younger and older than 34 yrs**
- **hrHPV infection is strongly and significantly related to cytologic abnormalities LSIL, HSIL and cervical cancer (OR are 3,2; 7,3 and 16,1 respectively).**



Thank you for listening !