Evaluation of HPV DNA Tests for Cervical Cancer Screening in Rural Area of Jiangxi Province in China

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Global Cancer Statistics (1,000 people/year)

- Breast: 692
- Colon: 338
- Cervix: 453
- Lung: 242
- Stomach: 102
- Uterine: 142
- Liver: 40
- Ovary: 100
- Thyroid: 74

Developed:

- Breast: 692
- Colon: 338
- Cervix: 77
- Lung: 242
- Stomach: 102
- Uterine: 142
- Liver: 40
- Ovary: 100
- Thyroid: 74

Developing:

- Breast: 611
- Colon: 232
- Cervix: 453
- Lung: 272
- Stomach: 247
- Uterine: 145
- Liver: 186
- Ovary: 125
- Thyroid: 89

IARC, Globocan 2011
Mortality rate declined substantially after the use of the Pap Smear in the United States. Is that suitable for China?
Changes of Cervical cancer incidence and mortality rate in past 20 years in China

Urban areas

Rural areas

Epidemiology of Cancer in Jiangxi Province

Urban or Rural areas

Cervical cancer ranked No.1 in the female reproductive cancers!
History of Cervical Cancer Control and Prevention

Developed countries

- C.C. screening launched
- Pap smear was used
- HPV + (−) TCT(LPT) applied
- Mortality declined substantially

- 1920s ~ 50s
- 1950s ~ 80s
- 1990s ~
- 2000s ~

China

- Wars and Revolutions
- Screen of Population (lack of cytologists)
- Screening program for China'
- "Two cancers" screening program for rural women

- 1920s ~ 70s
- 1970s ~ 80s
- 1980s ~ 2009s
- 2009s ~

Expensive: 500 RMB
Less resource
Natural History of Cervical Cancer

- **HPV infection**
  - Avg. 6-12mo.
  - HPV disappear
- **CIN 1**
  - Avg. 6-24mo.
- **CIN 2,3**
  - Avg. 10-13 yrs.
- **Invasive CA**
2013 WHO Screening Guidelines

HPV

- Negative
  - Rescreen after a minimum interval of 5 years

- Positive
  - VIA
    - VIA negative
      - Rescreen after 1 year
    - VIA positive
      - Suspicious for cancer
        - Refer to appropriate diagnosis and treatment
      - Eligible for cryotherapy, treat with cryotherapy
      - Not eligible for cryotherapy, treat with LEEP
      - Post-treatment follow-up at 1 year

WHO guidelines
WHO guidelines for screening and treatment of precancerous lesions for cervical cancer prevention
Jing'an was one of the counties with the highest mortality rate of cervical cancer in China, the crude mortality rate of cervical cancer between 1973-1975 was 39.3 / 100,000, more than three times the national average.

- 李隆玉，漆小玲，乔志强等. 靖安县宫颈癌防治现场. 中国癌症研究进展，2007，北京大学医学出版社第九期.
- 李隆玉. 宫颈癌的预防及普查. 中国实用妇科与产科杂志，2003，19（3）151-152.
Project in Jiangxi Province of China

Enrollment of women 30--64

Registration and identification verification

Obtain informed consent, complete epidemiological survey

Health examination and pregnancy test

CareHPV (+)  
HC2 (TCM) (+)  
Liquid-based cytology (LSIL or greater) (+)  
VIA/VILI (+)  
HC2 (STM) (+)

Digital colposcopy (+)

Four-quadrant biopsy, endocervical curettage if necessary

Normal

CIN1

CIN2 or worse

End

Exit and therapy as indicated by local instruction
Research of High-risk HPV infection on women in rural areas of Jiangxi Province (Jing'an County).

Population-based study
- Rural women aged 30—64
- 7469 women were included
- Hybrid capture2 test (hc2)
- CareHPV test (QIAGEN)
- HybriMax to understand HR-HPV types
- Visual inspection after acetic acid (VIA)

HR-HPV infection rate was 14.7% (1088/7403), 79 women had cervical intraepithelial neoplasia grade 2 or more severe (CIN2+), in which 41 had CIN3+.
The sensitivities and specificities of tests

**Sensitivity**

- careHPV
- HC2
- HybriMax
- VIA

**Specificity**

- careHPV
- HC2
- HybriMax
- VIA
Population’s **Dominant Subtypes** was HPV52, followed by HPV58,16 and 39.
Achievement of cervical cancer control and prevention for the past 40 years

Comparison cervical cancer high-mortality counties with the national average in rural area of China from 1973 to 1975 (1/100 thousand)

Comparison cervical cancer high-mortality countries with the national average in rural area of China from 2004 to 2005 (1/100 thousand)

Declined to the national average

The First Rural Area in Cervical Cancer Early Detection and Treatment for 40 years in China

Population-based detection rate of cervical cancer in Jing’an country

- Population screening and treatment
- VIA / VILI
- Hr-HPV

(1/10万)


11.7, 367.8
Ministry of Health of the People’s Republic of China had launched “screening-for-two-cancers program” (Cervical Cancer and Breast Cancer)

Free Cervical Cancer Screening Program for 50 million women in rural area launched, and 10 million women had accepted the screening.

10 million women in about 200 counties joined in the cervical cancer screening program.

Complete the Free Cervical Cancer Screening Program for 50 million women.
Thank You!

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