

[Report]

Trends in Uterine Cervical Cancer Screening at Physical Health Checkups for Company Employees in Japan

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Abstract : The consultation rate for uterine cervical cancer screening in Japan is markedly low in comparison with other developed countries. The purpose of this study is to investigate the trends in uterine cervical cancer screening during regular company checkups and to identify potential problems. Questionnaires were sent to occupational health physicians through *Sansuiken (Alumni Association of the University of Occupational and Environmental Health, Japan)*. Overall, 127 valid responses showed that Papanicolaou (Pap) tests are conducted in 100 companies (79%). The detailed information from 50 of the 100 responses was analyzed. Mandatory cervical cancer screenings are performed at just 6 companies (12%). Pap test are started at 30 years of age at 9 of 49 companies, and only 18 of 49 companies (37%) start Pap tests for employees at 20 years old. Of the 86,695 women, 31,294 (36%) received cervical cancer screening. Abnormal Pap test results were detected in 3.0%. Although cervical cancer screening rates have slightly increased compared to our previous studies (17% in 2004, 23% in 2008), it remains at a low level. Complete examinations with colposcopy and punch biopsy were carried out in 70% (61 of 87 women) of those with an abnormal Pap test. Twelve of 26 companies had no information about detailed examination results. It is important to note that cervical cancer incidence and mortality are increasing among young women in Japan. Occupational physicians and health nurses should manage female health education and care at the workplace, by including uterine cervical cancer screening in the growing female working population.

Keywords : cancer screening, company, occupation, physical checkup, uterine cervical cancer.

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Introduction

Uterine cervical cancer is the most common primary gynecologic malignant disease in Japan [1]. The median age at diagnosis is 48 years, and the majority of cases are diagnosed between the ages of 35 and 55 years. Uterine cervical cancer progresses slowly from preinvasive cervical intraepithelial neoplasia (CIN) to invasive cancer [2], and the basic Papanicolaou (Pap) test for asymptomatic women can effectively detect the treatable preinvasive disease form. In Japan, the current health care service for the elderly began in 1983, and the Japanese government financially supported screening for stomach and uterine cancer. However, early cervical neoplasms and invasive cancers have been increasing gradually in young women [1]. The rate of screening of cervical cancer in Japan is extremely low (about 20%), in comparison with other developed countries (70–80%) [3].

There are two types of cancer screening in Japan: “Population-based screening”, and “Opportunistic screening”. Population-based screening programs were established by the Health Service Law for the Aged, introduced in 1983, and over 25 million people are screened annually [4]. In contrast, opportunistic screening includes other checkups, such as complete medical checkups.

Physical checkups by the employer consist of “Pre-employment physical screening”, “Annual physical exams”, and “Industry-required physicals”. Fig. 1 shows gender distribution among Japanese workers determined by the Labor Force Survey, Japan [5]. The population of working women is currently increasing, and the ratio of women workers is about 45%.

The mandatory physical checkup examinations by employment companies are as follows. 1) Medical and employment history, 2) Symptoms, 3) Height, weight, sight and hearing tests, 4) Chest X-ray, 5) Blood pressure, 6) Anemia; Hb, Rbc, 7) Liver function; GOT, GPT, γ -GTP, 8) LDL HDL cholesterol, TG, 9) Blood sugar, 10) Urine test, 11) Electrocardiogram (ECG).

Uterine cervical cancer screening is not included in these items, and whether it is included in physical checkup depends on the policy of the employer at the company. We studied the trends in the uterine cervical cancer screening in annual company checkups and detected some problems.

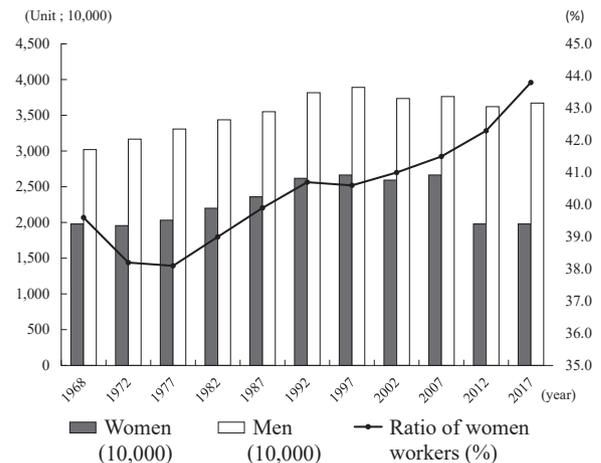


Fig. 1. Gender distribution among Japanese workers. Labor Force Survey, Japan Ministry of Internal Affairs and Communications Statistics Bureau. The population of working women is currently increasing, and the ratio of women workers is about 45%. Figure drawn making use of data of Statistics Bureau, Ministry of Internal Affairs and Communications (ref. [5]). <https://www.stat.go.jp/> [accessed January 14, 2019]

Subjects and Methods

Questionnaires were sent to occupational health physicians through *Sansuiken (Alumni Association of the University of Occupational and Environmental Health, Japan: UOEH)*. Overall, 127 valid responses showed that cervical cancer screening is conducted in 100 companies (79%; including health insurance society). We obtained detailed information from 50 of the 100 responses.

The contents of the questionnaires are as follows.

- 1 the number of female employees
- 2 target for cervical cancer screening
- 3 interval of cervical cancer screening
- 4 collection device
- 5 the method of reporting of outcome
- 6 the number of women with screening
- 7 the number of abnormal Pap test results
- 8 the number of women who had a complete gynecological examination

We also compared these results with our previous two studies (2004 and 2008) and the Health Promotion Act (Japan Ministry of Health, Labor and Welfare, Long-Term Care, Health and Welfare Services for the Elderly [2013]) [6].

Ethical considerations

The Medical Ethics Committee of the University of Occupational and Environmental Health, Japan approved this research (H27-166).

Results

The total number of female employees in the 50 companies included in this study was 90,661 (20%) out of 455,953 total employees. Mandatory cervical Pap tests were conducted at just six companies (12%), and 33 companies (67%) conducted cervical cancer screening for applicants only. Only 18 of 49 companies (37%) gave Pap tests for employees 20 years of age, and Pap tests were started at 30 years of age at 9 of 49 (18%) (Fig. 2). Annual Pap tests were performed at 35 of 48 companies (73%). For sample collection, a cotton swab was used at 20 of the 36 companies, and spatula or brush was used at 14 companies. Two companies had a self-sampling method for uterine cervical cancer screening. Of the 86,695 women in total, 31,294 (36%) were screened for cervical cancer in 44 companies, and abnormal Pap test results were detected in 3.0% (302 out of 9,904) of women in 26 companies (18 companies had no Pap test results). The number of women who had a complete gynecological examina-

tion with colposcopy was 61 of 87 (70%) in 14 companies. Twelve of 26 companies had no information about detailed examination results. Mild dysplasia was detected in 6 patients, and moderate dysplasia was revealed in 3 patients. Four patients had CIN 3 (severe dysplasia or carcinoma in situ). Microinvasive cancer and invasive cancer were detected in one patient but 28 women had no detailed data about the results.

Discussion

The number of cancer deaths in Japan has increased steadily, and cancer became the top cause of death, surpassing strokes, in 1981. For females, nearly 40% of total deaths of women in their late thirties are caused by cancer. The ratio increases to 50% of female deaths in their late forties and to nearly 60% of women who die in their late fifties [7]. These facts express how cancer is a disease that attacks people in the prime of life, including multiple generations of female workers.

Uterine cervical cancer is the most common primary gynecologic malignant disease in Japan, and annual estimates are 9,800 new cases and 2,700 deaths [1]. A study by the Ministry of Health, Labor and Welfare concluded that “there is sufficient evidence validating the effectiveness of cervical cancer screening by cytologic examination in women aged 30 or older” (Japan Public Health Association 2001). Conventional cervical testing has indicated the effectiveness in reducing cervical cancer incidence and mortality [8,9]. However, early cervical neoplasms and invasive cancers have been increasing gradually in young women [1]. The population with cervical cancer screening experience is quite low compared to other developed countries [3]. The uterine cervical cancer screening rate was 31%, and abnormal Pap test results were 2.1% in the Health Promotion Act : Japan Ministry of Health, Labor and Welfare (2013) [6]. The rate of punch biopsy for abnormal Pap test result was 70%. These results are very similar to those of our present study.

Human papillomavirus (HPV) has been shown to be associated with squamous intraepithelial lesions (SIL), and carcinoma of the uterine cervix [10-13]. Prophylactic vaccination against HPV in young females has been introduced in most developed countries, and clinical trials have demonstrated that HPV vaccines are

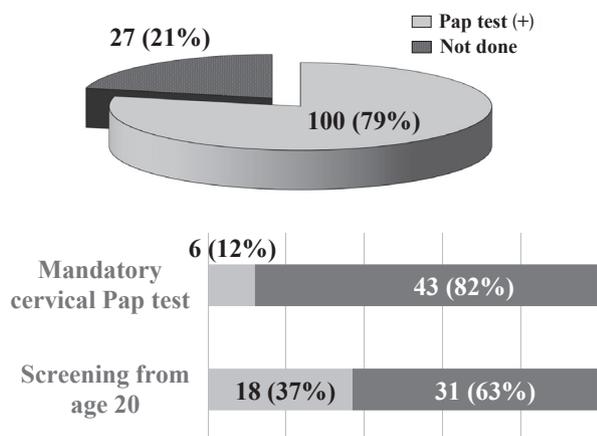


Fig. 2. Cervical cancer screening in physical checkups at 127 companies. Mandatory cervical Pap tests are conducted at just six companies (12%), and 33 companies (67%) conduct cervical cancer screening for applicants only. Only 18 of 49 companies (37%) start giving Pap tests for employees at 20 years of age, and Pap tests are started at 30 years of age at 9 of 49 companies (18%).

effective and safe [14], but the Japanese government withdrew its recommendation for the HPV vaccine in 2013, after unconfirmed reports of adverse events (complex regional pain syndrome ; CRPS) in girls who had been vaccinated. Alleged adverse events of HPV vaccine in Japan have brought much confusion among healthcare professionals and parents, with the result that vaccination rates have gone down, from around 70% to only 1% [15]. The combined use of HPV vaccine and cervical cancer screening including Pap test is indispensable for the prevention of cervical cancer. Now in Japan, cervical cancer screening is the only way to avoid increased rates of uterine cervical cancer.

The “Comprehensive 10-year Strategy for Cancer Control” study was carried out by the Japanese government in 1984. The resulting “3rd-term Comprehensive 10-year Cancer Control Strategy” (until 2013) contained the objectives of “Promotion of cancer prevention”, “Promotion of cancer research” and “Improved social environment with improved cancer medical care and support”. The goal of “Promotion of cancer prevention” was achieving a cancer screening rate of 50% within five years. To increase the screening rate, it is necessary to give the correct information and to support appropriate decision making [16–18]. Biennial cervical cytologic testing has been recommended as a uterine cervical cancer screening test for women aged ≥ 20 years since 2003.

In 2016, the Japan Ministry of Health, Labor and Welfare has reported the investigation of cervical cancer screening in companies from 1,238 health insurance associations. Nearly 70% of companies start Pap tests for employees at 20 years of age, but the cervical cancer screening ratio was 32.2% and the perceived state of abnormal Pap tests was just 6.8% of companies [19]. Table 1 shows a comparison between our current results and our two previous studies [20]. Physical checkups including Pap test were conducted in 33% in 2004, and in 79% in 2016. Although cervical cancer screening rates have been slightly increasing compared to our previous studies (17% in 2004, 23% in 2008), it remains at a low level. Colposcopy and punch biopsy were conducted in 70% (61 of 87 women) of those with abnormal Pap test results in 2016, and the rate of detailed examination had decreased (95% in 2004 to 74% in 2008). Advised consultation was conducted

Table 1. Comparison to previous studies

Pap test at physical health checkups	2004	2008	2016
Physical checkup, including Pap test	33/99 (33%)	53/125 (42%)	100/127 (79%)
Mandatory Pap test	18%	8%	12%
Cancer screening	17%	23%	36%
Abnormal Pap test result	1.5%	1.6%	3.0%
Abnormal Pap result – biopsy	95%	74%	70%
Consultation advised	70%	35%	41%

Although cervical cancer screening rates have been slightly increasing compared to our previous studies (17% in 2004, 23% in 2008), it remains in low level

in just 41% in 2016. There has been no remarkable change in these ten years, because female workers do not have adequate information about uterine cervical cancer and cancer screening. Although our studies consisted of answers from big companies, nearly 90% of all employees are working in small and medium-sized companies (company whose capital or total amount of investment does not exceed three hundred million yen (300,000,000 yen), or a company or an individual whose regular workforce does not exceed three hundred persons). The health status of workers in small companies has been poor, and our data do not reflect the current status of all female workers.

Cancer screening in Japan includes “Population-based screening” and “Opportunistic screening”. Although population-based screening program is for health checkups for citizens, it is hard to do health care visits for some female workers because of their jobs.

Introduction of uterine cervical cancer screening is important for companies to maintain worker health because of growth in the female working population. Occupational physicians and health nurses at companies should therefore survey female health care by including uterine cervical cancer screening. It is important to take note of the current situation of increasing cervical cancer incidence and mortality among young women in Japan. Health education of large numbers of people is easier at the workplace than in the community. In the present study, the further examination rate was quite low in women with abnormal cytological results, and most companies had no detailed information about

examination results. Although it is difficult to manage the personal information data, occupational physicians and health nurses at companies should monitor the Pap test result and cooperate with gynecologists.

In order to decrease the mortality rate caused by uterine cervical cancer, national and local governments, medical institutions, companies, and educational institutions must have an accurate understanding of the actual condition, and give proper guidance.

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Conflict of Interest

The authors declare no conflict of interest.

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職域健康診断における子宮頸がん検診の実態調査

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要 旨：日本の子宮頸がん検診受診率は他の先進諸国と比較して格段に低い。本研究では企業の定期健康診断における子宮頸がん検診の現状と動向を明らかにし、その役割と課題について検証する。産業医学推進研究会の協力のもと、子宮頸がん検診についてのアンケート調査を行った。127社から回答が得られ、子宮頸がん検診を実施している企業(事業所)は100社(79%)であり、うち50社からさらに詳細な回答が得られた。子宮頸がん検診を必須項目としている企業は6社のみで他は希望者を対象としていた。49社のうち対象年齢を30歳以上としている企業が9社にみられ、20歳以上としている企業は18社(37%)のみであった。子宮頸がん検診受診者数が把握できた44施設の女性従業員数は86,695名で、総従業員数の20%であった。検診受診者数は31,294人で受診率は36%であり、検診の結果が確認できた26社における細胞診陽性率は3.0%であった。過去の調査と比較して子宮頸がん検診受診率はやや増加していたが、依然低値であった(2004年17%, 2008年23%)。コルポスコピーと子宮頸部生検による精検受診率は70%であった。26社中12社は詳細な結果を把握できていなかった。勤労女性が増加するなか、産業医や産業保健スタッフは女性従業員に対し子宮頸癌の現状を中心に教育し、子宮頸がん検診を含めた健康管理を行う必要がある。

キーワード：がん検診, 企業, 職業, 健康診断, 子宮頸がん。