

Cancer screening among HIV-positive patients

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Introduction

1. Combination antiretroviral therapy (cART) has dramatically improved the survival of patients with HIV infection. As HIV-infected patients are living longer, cancer has emerged as a leading cause of morbidity and mortality in this population.
2. In the general population, consensus guidelines currently recommend screening for four cancers-cervical, colorectal, breast and lung cancers.
3. The Taiwan national cancer screening program began in 1985 by providing Pap smear tests for women, which has been expanding the free-of-charge screening services for four cancers since 1999, including oral, colorectal, cervical and breast cancers.

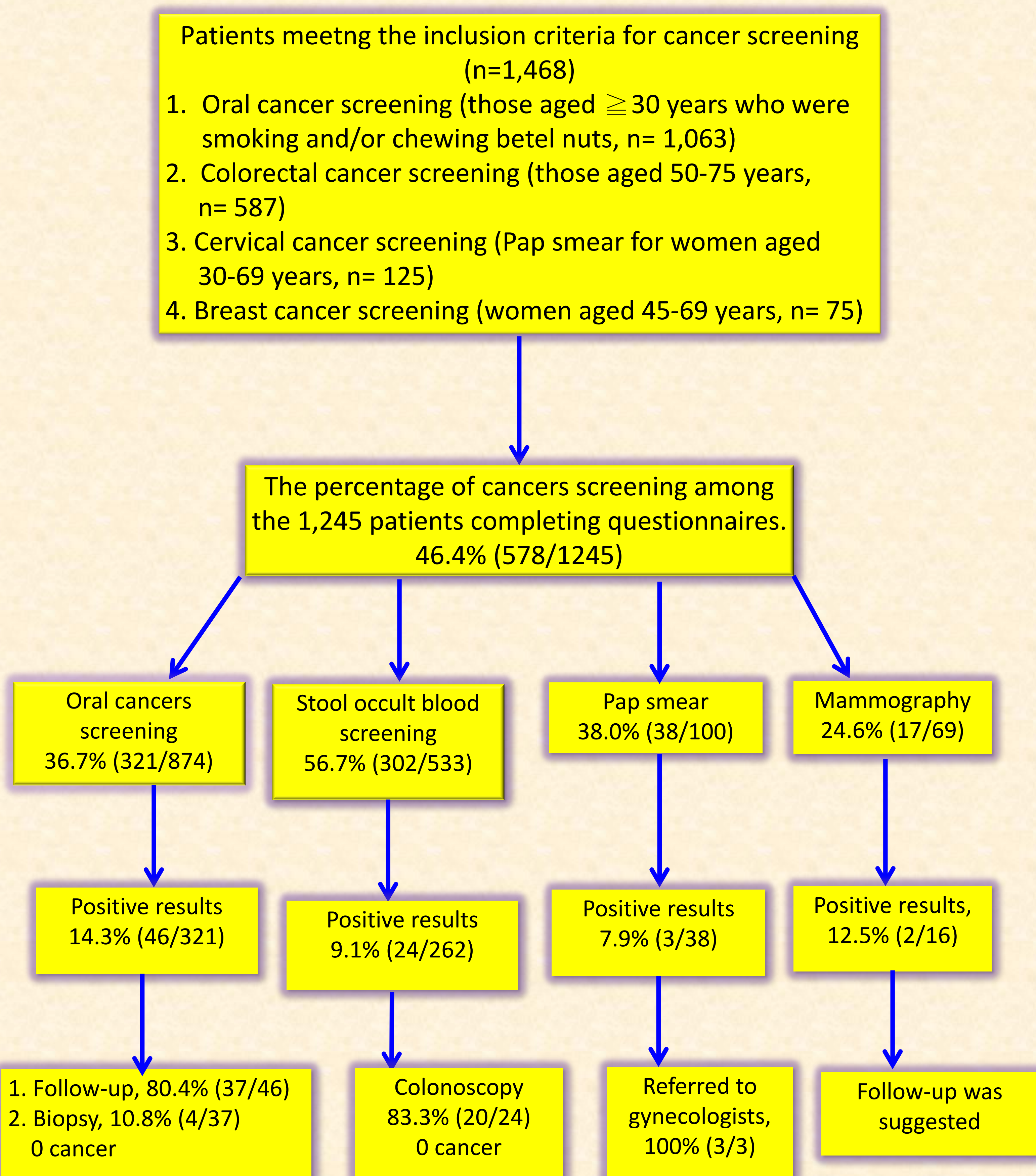
Patients and Methods

1. Study period: March and September, 2018.
2. Study subjects: HIV-positive outpatients seeking medical attention in the clinic at the National Taiwan University Hospital.
3. Patients were assessed for eligibility for cancer screening.

Cancer screening program in Taiwan

1. Oral cancer screening: the nationwide biennial screening includes the population over 30 years old who was smoking and/or chewed betel nuts in Taiwan.
2. Colorectal cancer screening: individuals aged 50-75 years were eligible for biennial screening.
3. Cervical cancer screening: the Pap smear examinations for women aged 30-69 years was performed once every year.
4. Breast cancer screening: a nationwide biennial screening mammography program has been offering asymptomatic women aged 45-69 years.

Figure 1. Study flow



Results

1. During the 6-month study period, 1,468 patients met the screening criteria and 1,245 (84.8%) completed questionnaire interviews. In total, 46.4% (578/1245) of the patients completed cancer screening (Figure 1).
2. Clinical characteristics of the participants are shown in Table 1. The subjects were predominately male and had a mean age of 46.6 years, 601 patients (48.3%) refused cancer screening because 159 (32.6%) reported having screening before, 243 (49.8%) having no time, and 85 (17.4%) other reasons.
3. After oral cancer screening, 4 patients were referred for biopsy.
4. 24 (9.6%) patients had stool samples with FIT-positive results and 20 (83.3%) were referred to colonoscopic examination.
5. 35 women underwent Pap smear examination for cervical cancer, with 3 (8.6%) having abnormal results. 16 women with digital breast tomosynthesis for breast cancer, 2 women have abnormal digital breast tomosynthesis examination result. None of the patients received a diagnosis of cancer in the cancer screening (Figure 1).
6. In multivariate analyses, an older age (adjusted OR, 1.050; 95% CI, 1.037-1.063) and having a family history of cancers (adjusted OR, 1.301; 95% CI, 1.012-1.671) were associated with participation in cancer screening. (Table 2)

Conclusion

While cancer screening is provided free of charge in Taiwan, the rate of participating in the program remains low among HIV-positive patients. Improving awareness of and accessibility to cancer screening is needed to increase the utilization rate in this population.

Table 1. Characteristics of the patients

Characteristic	N=1245
Male, n (%)	1143 (91.8)
Age, mean (SD), year	46.6 (10.5)
Alcohol intake, n (%)	333 (26.7)
Betel nut	
Never, n (%)	1164 (93.5)
Past, n (%)	70 (5.6)
Current, n (%)	11 (0.9)
Education level	
Primary school, n (%)	50 (4.0)
Secondary school, n (%)	108 (8.7)
High school, n (%)	335 (26.9)
University school or higher, n (%)	744 (59.8)
Smoking status, n (%)	
Never, n (%)	300 (24.1)
Past, n (%)	115 (9.2)
Current, n (%)	830 (66.7)
<10 years, n (%)	214 (25.8)
≥ 10 years, n (%)	616 (74.2)
Refuse cancer screening, n (%)	601 (48.3)
Reason of Refuse cancer screening, N=487	
Testing before, n (%)	159 (32.6)
Did not have time, n (%)	243 (49.8)
Others, n (%)	85 (17.4)
Family history of cancer	
Colon cancer, n (%)	90 (7.2)
Breast cancer, n (%)	70 (5.6)
Liver cancer, n (%)	96 (7.7)
Lung cancer, n (%)	92 (7.3)
Oral cancer, n (%)	18 (1.4)
Cervical cancer, n (%)	44 (3.5)

Table 2. Multivariate analyses of factors associated with willingness to undergo cancer screening

Variable	aOR	95% CI	P
Gender	0.840	0.528-1.338	0.4640
Age	1.050	1.037-1.063	<.0001
Education level	1.002	0.778-1.290	0.9892
Family history of cancer	1.301	1.012-1.671	0.0398