

Cancer Screening Findings in Korean People with Disabilities: 2016-2017

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Abstract

Background/Objectives: Cancer screening programs are effective in the early detection of several cancers. This study aimed to identify the findings of cancer screenings that were conducted in 2016 and 2017.

Methods/Statistical analysis: Sample were obtained from the National Health Insurance Service, and the cancer screening findings among both people with disabilities and those without were compared. Gastric, breast, colon, liver, and cervical cancer were analyze the findings of the screening programs. The findings were categorized as benign, suspicious of malignancy, or other categories (depending on type of cancer). Descriptive statistics and the X2-test were used to analyze the findings among the groups.

Findings: The findings were as follows: For gastric cancer screenings, 0.30% in 2016 and 0.35% in 2017 of those screened who had brain injury were found to have gastric cancer, whereas 0.16% in 2016 and 0.15% in 2017 of those screened who were non-disabled where found to have gastric cancer ($p<.001$). For breast cancer screenings, 0.90% in 2016 and 0.54% in 2017 of those screened who had brain injury had findings that were suspicious of malignancy. For colon cancer screenings, 4.48% in 2016 of those screened who had brain injury were found to have colon cancer, whereas 3.70% in 2016 of those who were non-disabled were found to have colon cancer ($p<.001$). For liver cancer screenings, people with brain injury had the most findings that were suspicious of liver cancer in 2016 ($p<.001$), whereas people with physical impairment had the most findings that were suspicious of liver cancer in 2017 ($p<.001$). The non-disabled group had the highest incidence of carcinoma in situ among groups in 2016 ($p<.001$) and 2017 ($p<.001$).

Improvements/Applications: Rigorous cancer screening programs should be implemented and expanded to include brain injury and physical impairment disabilities for the early detection of gastric, breast, colon, and liver cancer.

Keywords: Disability, Cancer, Screening, Brain injury, Physical impairment

Introduction

Cancer is a major health problem in Korea. Though the incidence and mortality rate of cancer are growing, the 5-year relative survival rate for cancer patients has improved in Korea. For example, in 2016, the cancer incidence rate was 269.0 per 100,000 individuals, but

the 5-year relative survival rate for patients with cancer increased from 41.2% (1993-1995) to 70.6% (2012-2016) [1]. Cancer screening programs may contribute to early detection and the improvement in the 5-year survival rate for cancer patients [2,3].²

In Korea, the National Health Insurance Service's screening programs focus on five types of cancer: gastric, breast, colon, liver, and cervical cancer. Gastric and breast cancer screenings are applied to people over 40 years old, colon cancer in people over 50, cervical

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cancer in women over 30, and liver cancer in people over 40 [4]. The frequency of screenings are every 2 years for gastric, breast, and cervical cancer, and once every year for colon and liver cancer [4]. Disabilities is one of venerable state in terms of healthcare. The World Health Organization’s “Global Disability Action Plan 2014-2021” states that “Disability is a global public health issue because people with disability, throughout the life course, face widespread barriers in accessing health and related services, such as rehabilitation, and have worse health outcomes than people without disability” (P.1) [5]. Increases in the number of people with disabilities are related to increases in chronic conditions such as cancer [5]. However, due to physical and socio-cultural limitations, many people with disabilities face barriers to regular access to health services [6,7]. For example, women with disabilities encounter barriers in accessing transportation, buildings, rooms, assistance, equipment, and procedures when seeking cervical cancer (pap smear and human papillomavirus testing) and breast cancer screening (mammography) [8,9].

Cancer incidence rates, survival rates, prevalence, and mortality are annually reported by the Korean government [2,10], but there is limited information regarding studies for comparing the findings of cancer screening among people with different types of disabilities and people with no disabilities. The purpose of this study was to compare the findings of five types of cancer (gastric, breast, colon, liver, and cervical cancer) screenings among both people with and without disabilities in 2016 and 2017.

Method

The study sample was obtained from 2016 and 2017 data from the National Health Insurance Service (NHIS).

In this study, 14,479,357 screenings conducted in 2016 (42,470 in those with brain injury, 448,775 in those with physical impairment, 730,712 in those with any form of disability, and 13,257,400 in those who were non-disabled) and 14,721,500 screenings conducted in 2017 (41,792 in those with brain injury, 440,912 in those with physical impairment, 731,063 in those with any form of disability, and 13,507,733 in those who were non-disabled) were analyzed.

Cancer screenings are available through the National Health Insurance Service for five types of cancers: gastric cancer, breast cancer, colon cancer, liver cancer, and cervical cancer. Findings are classified into different

categories depending on the type. The findings for gastric, breast, and colon cancer are as follows: cancer, suspicious of malignancy, benign, and undefined. The findings for liver cancer are as follows: need more follow-up diagnosis, suspicious of malignancy, and others. The findings from cervical cancer are as follows: infectious disease, carcinoma in situ, suspicious of malignancy, and others.

Frequencies and percentages for cancer screening findings were analyzed using Microsoft Excel (Redmond, Washington, USA) and SAS software (Carey, NC, USA). Descriptive statistics and the X2-test were used to calculate significance.

This secondary analysis study was approved by the Joongbu University Institutional Review Board (JIRB-2019070801-01-190710). After institutional review board approval was obtained, the NHIS approved the extraction of the sample (NHIS-2019-1-457).

Results

1. Gastric cancer screening

For the gastric cancer screenings, 0.30% in 2016 and 0.35% in 2017 of those screened who had brain injuries were found to have gastric cancer, whereas 0.16% in 2016 and 0.15% in 2017 of those screened who were non-disabled were found to have gastric cancer (p<.001). In both 2016 and 2017, the highest gastric cancer diagnosis group was the brain injury group (p<.001). [Figure 1] summarizes the findings from gastric cancer screenings conducted in 2016 and 2017.

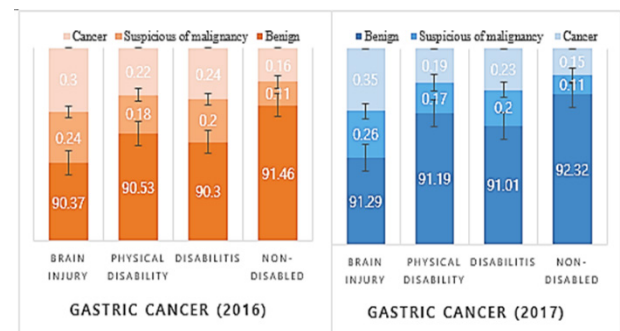


Figure 1. The findings from gastric cancer screenings conducted in 2016 and 2017

2. Breast cancer screening

For the breast cancer screenings, 0.90% in 2016 and 0.54% in 2017 of those screened who had brain injury had findings that were suspicious of malignancy, whereas 0.58% in 2016 and 0.64% in 2017 of those

screened who had physical impairment had findings that were suspicious of malignancy. In 2016, the group with the most findings that were suspicious of malignancy was the brain injury group, whereas the group including all individuals with disabilities (the disabilities group) had the most findings that were suspicious of malignancy in 2017 ($p<.001$). [Figure 2] summarizes the findings from breast cancer screenings conducted in 2016 and 2017.

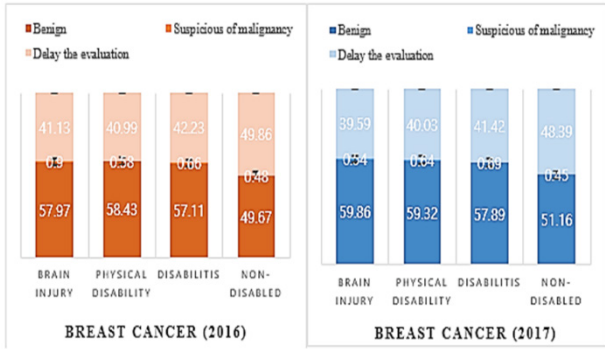


Figure 2. The findings from breast cancer screenings conducted in 2016 and 2017.

3. Colon cancer screening

For the colon cancer screenings, 4.48% in 2016 and 6.56% in 2017 of those screened who had brain injury were found to have colon cancer, whereas 3.70% in 2016 and 3.56% in 2017 of those screened who were non-disabled were found to have colon cancer ($p<.001$). In 2016, 3.75% of those screened who had physical impairment were found to have colon cancer, whereas in 2017, 3.41% of those screened who had physical impairment were found to have colon cancer. In both 2016 and 2017, the brain injury group was the highest colon cancer diagnosed group among the four groups (brain injury, those with physical disabilities, those without physical disability, and the non-disabled) ($p<.001$). [Figure 3] summarizes the findings from colon cancer screenings conducted in 2016 and 2017.

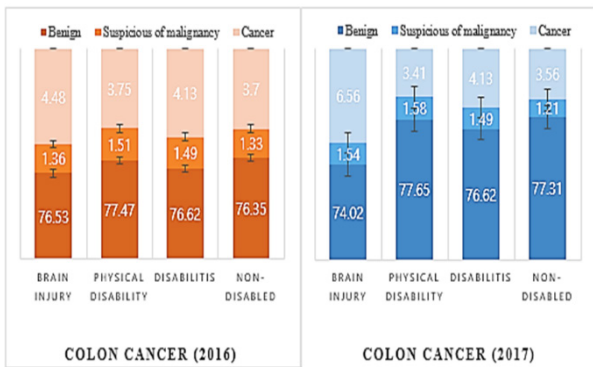


Figure 3. The findings from colon cancer screenings conducted in 2016 and 2017

4. Liver cancer screening

In 2016, 1.17% of those screened who had brain injury had findings that were suspicious of liver cancer, whereas in 2017, 0.65% of those screened who had brain injury had findings that were suspicious of liver cancer ($p<.001$). People with brain injury had the most findings that were suspicious of liver cancer in 2016 ($p<.001$), whereas in 2017 people with physical impairment had the most findings that were suspicious of liver cancer in 2017 ($p<.001$). [Figure 4] summarizes the findings from liver cancer screenings conducted in 2016 and 2017.

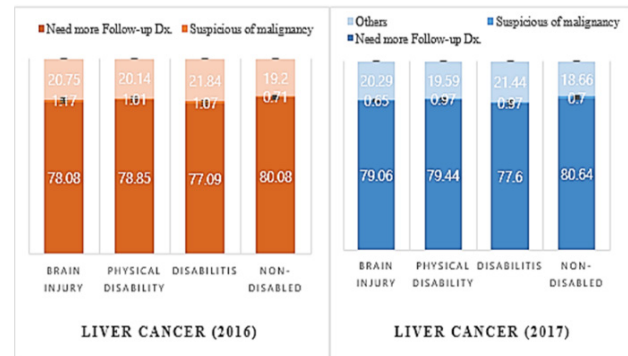


Figure 4. The findings from liver cancer screenings conducted in 2016 and 2017

5. Cervical cancer screening

For the cervical cancer screenings, the non-disabled group had the highest incidence of carcinoma in situ among the four groups in 2016 ($p<.001$) and 2017 ($p<.001$). These findings were different from findings for gastric, breast, colon, and liver cancer [Figure 5].

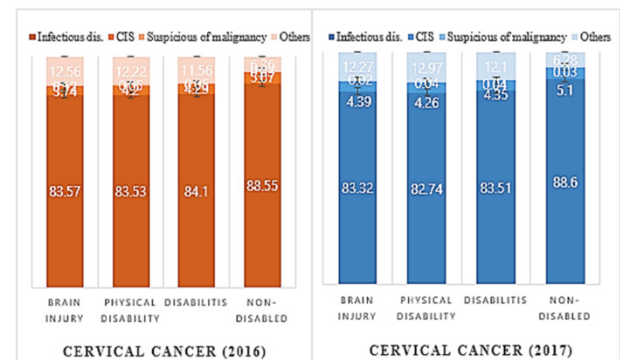


Figure 5. The findings from cervical cancer screenings conducted in 2016 and 2017

(CIS: carcinoma in situ)

Discussion

The results showed that cancer screening findings were different according to presence of disabilities and types of disability in this investigation. Particularly,

the number of suspicious of malignancy findings from gastric, breast, colon, and liver cancer screenings in disabilities caused by brain injury and physical disability were significantly higher than those without disabilities. Cancer is more common in people with disabilities than in people without disabilities because people with disabilities are less likely to be screened at optimal times.

The Korea cancer statistics showed that gastric, colorectal, prostate, thyroid, and liver cancer were highly prevalent in men, whereas women were more prone to thyroid cancer, followed by breast, colorectal, gastric, and cervix uteri cancer [1]. However, only five types of cancer screenings (gastric, breast, colon, liver, and cervical cancer) are offered by the Korean government. Cancer screening not only in those without disabilities but also in those with disabilities can reduce the incidence of late-stage cancer [11].

The gastric, colon, liver cancer are the most common cancer in Korea regardless of being disabilities [10]. Those who have disabilities are more likely to expose a cancer risk factors because there is a limit to fully utilizing physical function contrary to one's will. Particularly, person with disabilities caused by brain injury and physical impairment are not easy to take their regular health screening. [8]

Therefore, based on these findings, more effective cancer screening policies in terms of effective resources, facilities, timing and types of cancers screened should be developed and continuously implemented.

Conclusion

Cancer screening programs are designed for the early detection of cancer. The findings from this study showed that people with disabilities such as brain injury and physical impairment were more likely to be diagnosed with gastric, breast, colon, and liver cancer than non-disabled people in 2016 and 2017. Based on these results, continuous monitoring of cancer screening findings should be performed for disabilities, and various cancer screening programs, such as lung cancer screening programs, should be applied to disabilities.

Ethical Clearance: Not required

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Conflict of Interest: Nil

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