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Breast cancer risk factors

Abstract

Cancer is a disease that can lead to death if not treated promptly. Therefore, every individual, regardless male or female should have the awareness and knowledge of cancer. In accordance to that, this article will discuss about the risk factors associated with breast cancer. Among them are the factors of gender, age, personal history of cancer disease, menstruation, childbirth, menopause delays, estrogen replacement therapy, nutrition and the intake of alcoholic beverages. Then, this article discusses the recommendations on measures that can be taken to prevent cancer. Through writing about these risk factors and preventive measures, it is expected to increase the awareness among the public about the risks of cancer that can lead to death. It is hoped that with the awareness of the risks of cancer disease, the public are encouraged to keep personal health in good condition.

Keywords: Risk factors, cancer disease, prevention, awareness, health

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Introduction

The actual factor of breast cancer is still left unknown. Medical experts from all around the world have yet to find out clearly why a person suffers from breast cancer. However, there are some risk factors that can cause breast cancer such as genetic, endogenous (internal) and exogenous (external) hormones, environmental conditions and lifestyle practices. Furthermore, until now there is no immunization as a protection to prevent cancer disease.

Cancer risk factors

There are some risks that cause breast cancer. The first risk factor is gender, that is women. It is found that 99% of women suffer from breast cancer compared to men who only occupies 0.7%.[1] National Cancer Institute[2] estimates the deaths of women caused by breast cancer is 40,460 and the number of males is only 450. Then, 20% of men who suffer from breast cancer have the closest family, either brother or sister who have breast cancer. According to Giordano, Cohen, Buzdar, Perkins & Hortobagyi,[3] breast cancer among men is rare. For example, male patient cases only increase by the rate of 0.86 to 1.08 from 100,000 people.

The second risk factor is age. Age factor is found to be related to breast cancer.[4] The higher is the age of a person, the higher is risk for breast cancer. A newborn up to the age of 39 will be at risk of breast cancer by 0.5%, age 40 to 49 years will be at risk of breast cancer by 4%, age 60 to 79 years will be at risk of breast cancer by 7%. Next, the age of 90 years and above will be at risk of breast cancer by 14.3%. Why is age a risk factor of breast cancer? This is because the aspects of genetic degradation in the body can occur at any time throughout the lifespan, starting with the formation of abnormal genes and uncontrollable growth that are incompatible with the body. If this condition occurs among young people, the type of cancer is aggressive and serious. This type of cancer is unique because there is no presence of lumps and can only be diagnosed through mammography.[5]

The third risk factor is the individual's personal history who has had breast cancer. If a person has ever had breast cancer in one of her breasts, there is a high risk of getting cancer at the other breast. The rate of increase is two to three times compared to women who have never had the history of breast cancer.[2] Apart from that, the history of cell abnormalities in any breast also contributes to higher risk. Women who were found to have a history of cytology abnormalities (epithelial hyperplasia) in her breasts showed an increased risk of breast cancer compared to those who had no abnormalities (atypical hyperplasia).[6] Furthermore, family history of breast cancer has also shown that the individual is at risk of breast cancer. For example, women with siblings who have had breast cancer, especially under 40 years old, are two to three times as likely to suffer from breast cancer compared to women who have never had breast cancer. Family history from both sides, regardless of a mother or father, who has had breast cancer is also at risk.[7] In a pilot study conducted on adult women, 5% to 10% of them have a history of mothers or sisters with cancer. Among them are the history of mothers, fathers, daughters, siblings or family members such as grandmothers, aunts and cousins with breast cancer.[2] In addition, the history of genetic mutation of the grade of cancer is very dangerous. Gene mutation is a change in the composition of the usual DNA (deoxyribonucleic acid) gene. In most cases, breast cancer cells occurs sporadically, but 5% of breast cancer patients suffer from BRCA1 (breast cancer gene) mutations or BRCA2 (breast cancer gene 2). Mutation of BRCA1 gene often occurs among women aged 30 and below (Miki et al., 1994). According to Hall et al.[7] someone who is at risk of breast cancer is associated with their heredity. According to the researcher, 17q21 chromosome can be detected in BRCA1 gene in patients who have family with breast cancer. Families who are found to have BRCA1 genes are at risk of breast cancer by approximately 45%. Likewise, Wooster et al.[8] can detect other chromosomes, i.e. 13q12-13 in BRCA2 gene. Families with BRCA2 gene are at risk of breast cancer by 80%.

The fourth risk factor is the start-up period of menstruation.[9] They found that the younger the woman starts her menstruation, the higher is the chance of she suffers from breast cancer. Menstruation at a young age is associated with regular menstrual cycles. In accordance to that, they are prone to ovarian estrogen and progesterone hormones. Other studies have shown that if a woman starts menstrual period early, there is an increase in estradiol serum concentrations during the menstrual cycle in the follicular phase compared with late menstruation (Apter, Reinila, & Vihko, 1980; Vihko & Apter, 1986). The findings explain that early menstruating women at a young age would be exposed longer to higher estrogen hormone on their fertility. Butler et al. (2000) states that women who start menstruation late at the age of 15 and above are at lower risk of breast cancer by 23% compared to women who start menstruation at the age of 12. This finding is similar with the findings of Negri et al.[10] which states that women who start menstruation at the early age are at higher risk of 20% to 30% compared to women who have menstrual periods late

at the age of 15 years and above. Similarly, the findings by Hsieh, Trichopoulos, Katsouyami, & Yuasa[11] explain that every two years of delayed menstrual periods reduces women' breast cancer risks by 10%. While women who start menstruation two years earlier are found to have increased breast cancer risk by 11%.

The fifth risk factor is women who have given birth. According to Lambe et al. (1994), women who have been pregnant also have the risk of getting breast cancer. This is due to the stimulation of Okulta tumor hormone (not visible to the naked eye) change. For all women who have had given birth, there is a lower risk of 25% of having breast cancer.[12] Meanwhile, women who have had given birth to more than five children are at a lower risk of 50%.[13] However, women who gave birth to the first child at young age has low risks of breast cancer.[9] Meanwhile, women who gave birth to the first child at the late age of over 35 years have high risk of breast cancer compared to women who have never given birth.[14]

The sixth risk factor is the delayed age of menopause. The latter is one's menopause, the higher is the risk of breast cancer.[15] They reported that there is a link between increased breast cancer risks with the natural menopause age. Women who have menopause naturally when they are 55 years old and over has the doubled risk of breast cancer compared to women who have menopause before the age of 45.[11] They also reported that women who have five years delayed of menopause are related to an increased risk in breast cancer by 17% after menopause. While menopause which is triggered by ovarian surgery (bilateral oophorectomy) before menopause can actually lead to a reduction in breast cancer risk in old age. Ovarian surgery has been associated with a 60% reduction in breast cancer risks compared to those women who have menopause at the age of 45 to 54.[15] Ovarian surgery at a young age will prevent getting breast cancer about 10 to 15 years later after surgery. According to Brinton et al.,[16] women who had removed their ovaries before 40 years old have less 45% of breast cancer risks compared to those who have natural menopause when they are between 50 and 54 years old. Researchers claim that having ovarian surgery at a young age is associated with a reduction in breast cancer risk associated with the natural age of menopause. This provides significant effect and leads to a sharp reduction in breast cancer risks regarding hormonal factors with surgery.

The seventh risk factor is related to estrogen replacement therapy. Wingo, Layde, Lee, Rubi & Ory[17] have conducted studies on the relationship between estrogen replacement therapy and breast cancer risk. In the study, they found that some women who had ovarian surgery (removal of ovary) and the long-term use of hormone replacement therapy have a relatively 1.3 lower risk of breast cancer compared to women who had never used hormone therapy. Meanwhile, for women who still have one ovary after hysterectomy (cervical removal), there is a risk of 0.8. Finally they summarize that the risk of breast cancer cannot be measured by the long-term hormone replacement therapy. Whereas the study conducted by Schairer, Lubin, Troisi, Sturgeon, Brinton, & Hoover[18] on menopausal women who have taken estrogen and estrogen-progesterone Hormone Replacement Therapy (HRT) found that 2082 out of 46,355 women have breast cancer. As a result of these studies, it is concluded that women taking estrogen-progesterone are at higher risk of breast cancer than women who only take estrogen hormones.

The eighth risk factor is nutrition. According to Doll & Peto,[19] it is estimated that two thirds of cancer patients in the West are due to dietary factors. Nutrition that contributes to breast cancer is fat.[20] But according to Hunter et al.[21] there is no positive association between food intake and breast cancer.

The ninth risk factor is the intake of alcoholic beverages. The study by Carrao, Bagnardi, Zambon, & Arico;[22] Ellison, Zhang, Mclennan, & Rothman;[23] Singletary & Gapstur,[24] has confirmed the responsiveness of consuming alcohol with breast cancer. Someone who drink alcohol in high scale has high risk of getting breast cancer.[25] Similarly, the study conducted by Friedenreich, Howe, Miller & Jain[26] found that among 56,837 women studied, 519 women were confirmed with breast cancer. The study sample had taken alcohol for more than 9 times in one day.

Recommendations

Cancer can risk individuals if not prevented. Therefore, every individual needs to take early steps to prevent cancer. First of all, every individual needs to be aware of the knowledge of cancer. For example, about cancer risk factors, measures to prevent cancer, cancer treatment measures, things to avoid when diagnosed with cancer, and things avoid during the process of cancer treatment.

Information related to cancer can be obtained from various sources. For example, in the internet, newspapers, magazines and printed materials from hospitals. In addition, the information can also be obtained from health centers as well as hospitals. Individuals should seek to obtain such information to increase their knowledge of cancer. The knowledge in oneself will indirectly create awareness to prevent it. In the meantime, if there is someone among our friends who suffers from cancer, it is advisable to pay a visit to them to get real information about the cancer they are facing. Usually when we visit our friends who are suffering from cancer, we can indirectly inform ourselves about the importance of taking precautionary measures to prevent cancer. Besides, we can also motivate the patients so that they are not depressed with the cancer they experience. All cancer patients need moral support from families, communities and other medical personnel to survive.[1]

For cancer patients who have recovered, they can give advice to others on how to maintain their health at all times. For example, in terms of nutrition, exercise, usage of prohibited substances such as smoking and drinking alcohol. Apart from that, cancer patients can also share about the early symptoms of cancer. Each type of cancer has different symptoms. These cancer symptoms should be exposed to the community so that they can take immediate action if they have these symptoms. Among these actions is to consult the doctor for proper advice and treatment. Avoid taking traditional methods. Traditional methods differ greatly from modern methods. Modern methods have complete facilities and equipment compared to traditional methods. Some individuals might straightforward get traditional method of treatment in the hopes of recovering quickly when they experience symptoms of cancer. Also, there are some individuals who go to the hospital only when their cancer condition is getting worse and spread to other body parts. Treatment at hospitals or conventional treatments are both highly recommended to those with cancer. Among the treatments from the hospital are surgery, chemotherapy, radiotherapy, hormone therapy or a combination of these therapies.

The aspect of education is also an important thing to be given attention in raising awareness about breast cancer risk factors among all walks of life. For example, the Ministry of Education in collaboration with the Ministry of Health should play a role in exposing knowledge about cancer risk factors. Knowledge of these risk factors can be

exposed to school children through the subjects offered in school. Especially in Physical Education and Health Education subject. Physical Education and Health Education subject is offered from primary to secondary school. Therefore, it is very appropriate for the content of cancer disease to be included in Physical Education and Health Education curriculum. Compared to other subjects, Physical Education and Health Education is a subject that deals with aspects of health and fitness. Physical Education teachers should play a pivotal role in delivering knowledge about cancer to school children. They need to ensure that Physical Education and Health Education is fully utilized to deliver knowledge about health aspects to school children. If the knowledge of cancer is given to school children from school, then surely the future society will have sufficient knowledge about cancer. When the society has enough knowledge about cancer, it will certainly give people an awareness of the dangers of cancer. To ensure that students acquire knowledge about cancer, the Ministry of Education can hold exam for the subject of Physical Education and Health Education, especially in public examinations such as UPSR, PMR and SPM. If the subject of Physical Education and Health Education is included in the exam, the student will pay more attention to Physical Education and Health Education, including content related to cancer.

On behalf of the physician, it is important to identify the symptoms correctly. If there are patients consulting the physician, make sure that they get accurate information about the actual disease they are facing. For example, avoid saying that the symptom is normal and has nothing to do with cancer. It is best to first perform a thorough check up with sophisticated equipment before making judgment and decision. Aside from asking questions to the patient, it is recommended that the physician also conduct a thorough examination of the patient. It is also recommended that all medical centers, whether hospitals or clinics, have specialized and sophisticated equipment for detecting cancer that is increasingly serious at this time.

Conclusion

Nowadays, many diseases have emerged in the world including cancer. There are various cancer diseases that have attacked humans including breast cancer. "Preventing is better than cure" is a step that every individual in the world needs to practice. Among the first steps is to identify the risk factors of breast cancer. Identifying the risk factors of breast cancer can make us aware of the importance of maintaining health including maintaining personal hygiene in order not to be susceptible to cancer. In addition, the relevant authorities should be responsible for cooperating with the community in preventing the occurrence of health problems associated with breast cancer. If all the individuals and parties concerned have a close cooperation in addressing the problem of cancer disease, it is probable that the risk of breast cancer among the population of our country can be reduced.

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Conflicts of interest

Authors declare that there is no conflict of interest.

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