ORIGINAL

The role of environmental factors and molecular genetics diagnosis in treatment of breast cancer in Iran, Qom (2019-2020)

El papel de los factores ambientales y el diagnóstico de genética molecular en el tratamiento del cáncer de mama en Irán, Qom (2019-2020)

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Abstract

Cancer is one of the leading causes of death and disability worldwide, especially in developing countries. Development is considered. In most cases, cancer is not because of the person's innate biology, but because of the environment in which the person lives are created. In this study, the available evidence on the role of environmental factors and how they affect the incidence of cancer Has been reviewed. BRCA1 and BRCA2 are the two most important high-risk genes for hereditary breast cancer. A significant proportion of familial breast cancer is caused by mutations in the CHEK2 gene. Other gene susceptibility alleles are also uncommon causes of breast cancer. More than 1000 mutations in BRCA1 and BRCA2 have been found, and molecular techniques for detecting mutations in these genes are now well established. Mutations in BRCA1 and BRCA2 generate genomic instability, which leads to changes in other important genes, such as tumor suppressor genes and/or oncogenes. In the near future, there is the possibility of personalizing treatment plans for individual women. The discovery of miRNAs as gene expression regulators establishes them as a novel candidate for diagnostic and prognostic markers, as well as therapeutic targets. Information related to crime victims Cancer patients during the years 2019 to 2020 in Iran in Qom city. It was recorded that it has been collected and has been analyzed and analyzed. In this review the PARS codes. They are used as diagnostic codes for breast cancer are ICD of 10 C50. The number of registered breast cancers during these three years was 399. The number of registered breast cancers during these three years has been 399.

Keywords: Cancer, breast, molecular genetics, diagnosis, treatment.

Resumen

El cáncer es una de las principales causas de muerte y discapacidad en todo el mundo, especialmente en los países en desarrollo. Se considera el desarrollo. En la mayoría de los casos, el cáncer no se debe a la biología innata de la persona, sino al entorno en el que vive. En este estudio, se ha revisado la evidencia disponible sobre el papel de los factores ambientales y cómo afectan la incidencia del cáncer. BRCA1 y BRCA2 son los dos genes de alto riesgo más importantes para el cáncer de mama hereditario. Una proporción significativa de cáncer de mama familiar es causada por mutaciones en el gen CHEK2. Otros alelos de susceptibilidad genética también son causas poco frecuentes de cáncer de mama. Se han encontrado más de 1000 mutaciones en BRCA1 y BRCA2, y las técnicas moleculares para detectar mutaciones en estos genes están ahora bien establecidas. Las mutaciones en BRCA1 y BRCA2 generan inestabilidad genómica, lo que conduce a cambios en otros genes importantes, como los genes supresores de tumores y / o los oncogenes. En un futuro próximo, existe la posibilidad de personalizar los planes de tratamiento para mujeres individuales. El descubrimiento de los miARN como reguladores de la expresión génica los convierte en un nuevo candidato para marcadores de diagnóstico y pronóstico, así como dianas terapéuticas. Información relacionada con víctimas de delitos Pacientes con cáncer durante los años 2019 a 2020 en Irán en la ciudad de Qom. Se registró que se ha recogido y ha sido analizado y analizado. En esta revisión los códigos PARS. Se utilizan como códigos de diagnóstico para el cáncer de mama son ICD de 10 C50. El número de cánceres de mama registrados durante estos tres años fue de 399. El número de cánceres de mama registrados durante estos tres años ha sido de 399.

Palabras clave: Cáncer, seno, genética molecular, diagnóstico, tratamiento.

Introduction

Breast cancer is one of the most common cancers women. The risk of developing this cancer in a lifetime It is 10% for women. This cancer in developing countries Found about 10% of all cancers and 23% of cancers Women make up more than 15% of healthy women At least one person with breast cancer in relatives Have first degree and experimental data show that the risk of breast cancer in these women is doubled This cancer is the second deadliest cancer among women. after lung cancer Breast cancer is one of the most common and worrying women's health problems in the world[1].Today, many efforts are made to increase the rate Mortality from breast cancer through procedures reduce early detection. If diagnosed This cancer can be treated in a timely manner It largely prevented breast cancer. Proper screening, however, can slow the progression of cancer Stop, but usually in advanced types of cancer, Treatment is ineffective. Overall cancer result combination of different factors including: hereditary mutations and is an environmental factor, the main cause of cancer, Defects in genes are more monotonous or occurs spontaneously in somatic cells[2].Although genetic factors play a role in the development of cancer. According to research, as much as environmental factors are not decisive, significant and rapid changes in updates Cancer can only be exposed to change over the past few decades.

Population is attributed to environmental factors Numerous environments are known to cause Cancer in humans. However, such assumptions are often without Being able to provide convincing evidence or proof of acceptance or their rejection has been delayed for several years or decades. This has led to serious criticisms of environmental epidemiology[3].

There are several major avenues in cancer medicine, which utilize molecular-based assays. Testing for hereditary cancer syndromes is now routinely used both for identification of persons at-risk and for personalization of systemic treatment.

Although the genes responsible are often cancerous Breast families have not yet been discovered, about half of Familial cancers due to mutations in the reproductive lineage (Tumor suppressor genes) Tumor suppressor genes It often occurs that their role is to maintain correctness and (TSGs) The whole is the genome[4]. These genes include the following:

a. BRCA2, BRCA Genes
b. Related to the family cancer syndrome TSGs Other ATM and PTEN, rare TP like 53
c. Other low to medium risk genes such as 2 RAD50, NBS1, PALB2, BRIP1 Such as (mismatch)
d. awkward open repair genes of the pair

Figure 1: Molecular diagnostics in oncology.
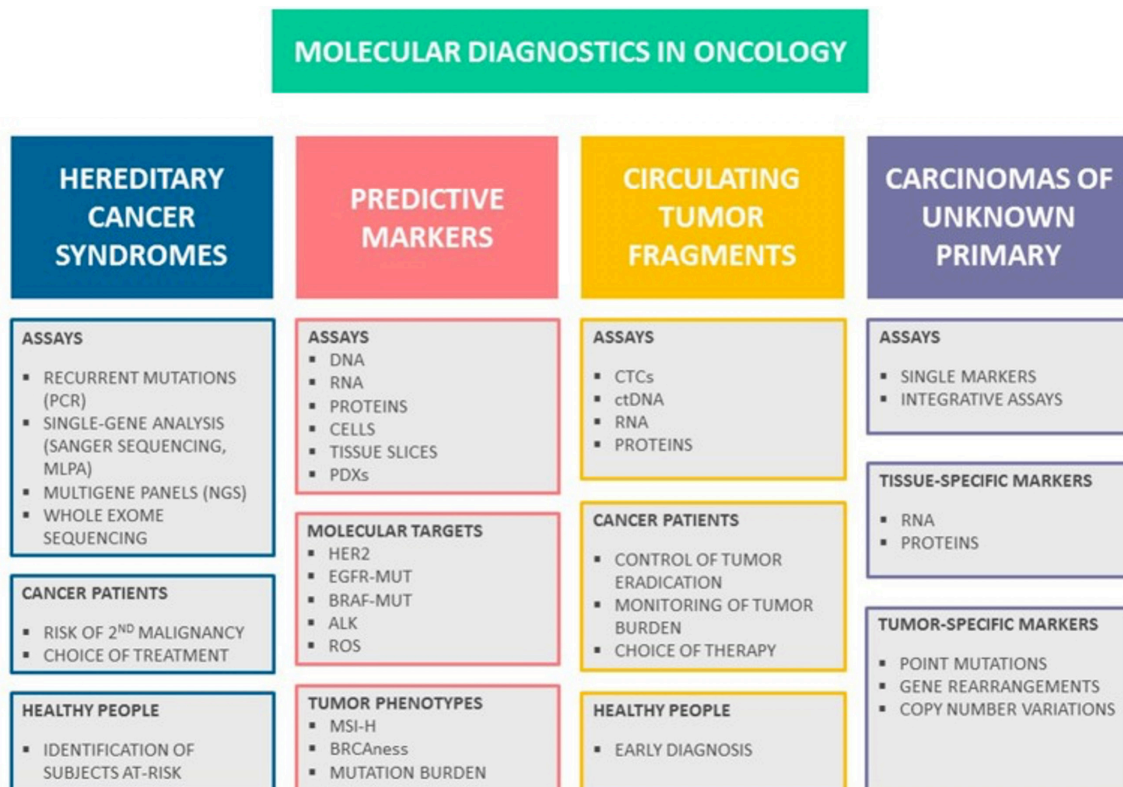
BRCA2 and BRCA1 genes, respectively 13 are located and the component q is 12-17 and 13 q are 12-chromosome 21 Conventional genes are considered tumor suppressors because Existence of a copy of a defective gene inherited for It is enough to be prone to cancer, even if it is a loss A healthy allele is needed to make a tumor. These genes are proteins large companies encrypt multiple jobs that are spatial Multiple linkages for protein-protein interactions It has three main functional areas and is in BRCA. Gene 1 Participates in several protein complexes. Not yet clear BRCA does not know which of the many functions 1 Its specific role as a gene predisposes to breast and ovarian cancer[5&6].

Materials and methods

In a general definition, the environment refers to all non-genetic factors and lifestyle factors such as usage tobacco, biological agents such as hepatitis viruses, drugs, Nutrition includes occupational exposure and other factors. but in A more limited definition, the environment includes all non-genetic factors that a person is not able to directly control them or in other words, it does not depend on the direct choice of the individual. Information related to crime victims Cancer patients during the years 2019 to 2020 in Qom. It was recorded that it has been collected and has been analyzed and analyzed. In this review the PARS codes They are used as diagnostic codes for breast cancer. ICD of 10 C50. The number of registered breast cancers during two years was 399.

Findings
As the most susceptible BRCA and 2 BRCA1 genes Breast cancer is known and several They have cellular functions that include such a vital role in Is homologous. DNA repair proteins DNA plays a vital role in the repair of BRCA and 2 BRCA1 Broken dots have this process. The homologous recombination process is repaired. Thus, inherited mutations in each of these genes are associated with Lack of heterorigocytes, cells into instability Chromosomal and greatly increase the likelihood of change. BRCA and 2 BRCA carriers of mutations in genes 1, 10-20 times more likely to get cancer DNA (They have breasts because of their ability to repair) Two strands of DNA damaged through the repair process Broken down into BRCA and 2 BRCA, genes 1. They belong to the tumor suppressor gene family. Perform this Genes in normal cells, providing stability and help prevent uncontrolled DNA growth Is cellular[7&8]. As the second most influential gene locus on BRCA gene 2 13 is a length of 10 kb q chromosome 12 There is a genome. This gene has 21 DNA exons Which encodes a 3411 amino acid protein BRCA does. More than 300 types of mutations in gene 2 It has been identified that most of these mutations are of the type C-terminal is the final codon The region is protected with

BRCA in protein 2 Is banded to recombine DSS and 1 ssDNA.) Homolog is required[9].

Unexplained weight loss, anorexia, fever, fatigue (fatigue Excess), pain, and skin changes are signs of onset Cancers are 4. Along with general symptoms, changes in habits Intestine or bladder function, wound that does not heal, patches White inside the mouth or white spots on the tongue, bleeding or unusual discharge, tightening or mass formation in the breast or other parts of the body, indigestion or difficulty swallowing, any changes New in the skin, annoying cough or hoarseness and ... from Signs and symptoms of certain cancers[10]. The incidence of cancer in the world is increasing and the death rate Cancer due to cancer in West Asian countries, including Iran It has an ascent. About 8 million new cancers in the world every year 5 million people die / add to cancer each year and they do. This is while 65% of them are in countries It is developing and, in the meantime, the main burden of cancer in Asia and Southeast Asia. In Iran, about 90 thousand annually Case (140 people per 100,000 population) New infection Cancer is registered and currently 400 thousand people in the country About 30,000 people are diagnosed with cancer each year 6. In other words, 450 patients die annually, shortening the life of the Iranian people for a thousand years[11&12].

Based on scientific evidence and documents, the most important risk factors cancer has its roots in high-risk lifestyles and behaviors They are often preventable. International Research Institute, more than 100 human carcinogens IARC cancer. These agents are divided into 4 carcinogenic groups for Humans, potentially carcinogenic to humans, potentially carcinogenic to humans and the possibility of carcinogenesis for humans are classified[13]. Physical activity and nutritional factors people's lifestyle It is the third most important cause of cancer. Diet Inadequate, overweight, and inactivity are contributing factors While research is underway to better understand. They are cancerous the role of these factors in the development of cancer is progressing, new findings show that each of these factors. They can affect the risk of cancer[14]. What conclusions about the relationship between exposure to pollutants Environmental problems and cancer in humans' Intrinsic properties associated with the toxicity of these compounds and aspects The methodology of epidemiological research is used. In other words, it can be said that the assessment of exposure and also, the Achilles heel research methodology of all studies Concerning the relationship between environmental pollutants Has been with cancer. Strong design combination of studies, evaluation Advanced exposure rate with better understanding of the mechanism of the disease and the use of exposure biomarkers can reinforce evidence Lead epidemiologically[15].

Results

The median incidence of breast cancer is in the population of tens of thousands, the trend is increasing. 9-11.3-32, respectively 9.3-31- during 31 years 91 out of tens of thousands of women had a female population of 21.9. The median incidence of IT in women is 11.31, respectively. During these three years, breast cancer has been the first most common cancer in women. The average age of the cancer victim was 9.1 years. More than 1. % of the median incidence in the age group of 91 to 33 years. Which is 11 years less than the global hemisphere. Unfortunately, in our country, the peak prevalence of breast cancer among women in the fourth and fifth decades of life Many Pashtuns are a decade lower than the world average. That's why you can watch women Under 31 years of age should be examined for one to two years, and from this age onwards Visit. In fact, from the age of forty onwards, in addition to examinations, mammography (breast imaging) should be performed. Do it annually so that by repeating these tests regularly, breast cancer can be detected in the early stages and advocated for the treatment of rabies. BRCA and 2 BRCA More than 1000 mutations in 1. It is reported that most of them are cut off from this Proteins lead. Today, genetic testing techniques To BRCA and 2 molecular BRCA to find mutations Extensive syntax is used and a variety of techniques are used for A study of the activity of defective proteins has also been developed. Causes instability of BRCA genome and BRCA mutation in 1 It may be due to changes in other key genes Contains tumor suppressor genes or oncogenes[16&17].

Compared to diffuse breast cancers, cancer Breast families have special characteristics. Studies The latter using comparative genomic hybridization Comparative genomic Hybridization Along with (DNA microarray) DNA microarray analysis Characteristics of FISH and IHC Safety - Tissue Chemistry Genetics and phenotype show specific immunity for these tumors Data[18] Molecular pathology and biology Together BRCA and 2 BRCA mutation-induced tumors in 1.

BRCA is no longer different. Mutation-related tumors 1 Aggressive features, including early onset, high grade (PR) and progesterone receptor (ER) tumor, estrogen receptor Negative and show high proliferation rate[19]. Cell proliferation is an important feature of cancer and protein. A good indicator of this is non-histone nuclear Ki67 It can also be used as a Ki process. Painting 67A reliable indicator of reproductive activity and as a marker Usefulness of treatment, through multiple measurements on Consecutive tissue samples are used during treatment[20].

Breast tumors include a heterogeneous group of cells. There is a small part of them called stem cells They form. These cells due to their ability to proliferate in the process of tumor formation, (self-renewal) and self-renewal They are effective. Loss of self-regulatory process regulation an increase in stem cells leads to this problem Probably involved in the early stages of cancer. MiRNAs are capable of simultaneously regulating several target genes They are a good candidate for regulating the process of self-renewal Stem cells and deciding the fate of the cell has done[21].

Conclusion

In most cases, cancer is not because of the individual's innate biology, but because it is created by the environment in which the person lives. So that a significant share of cancer deaths Especially among men because of smoking. the countries to reduce this mortality, we must focus on prevention Start smoking among working youth and individuals Encourage a smoker to quit. In countries with income Down, especially in Asia and sub-Saharan Africa, A high proportion of cancers are caused by infection. For some cancers in the body, being overweight is a risk Is considered an invoice. Support and training on Sun protection for all members of the community, Family, health care system, schools, workshops, Organizations and mass media are essential. From the case points the focus of such studies is to assess the extent of exposure and Also research methodology on the impact of pollutants Environmental and occupational on the incidence and prevalence of cancer in society It is a problem. DNA and repair of BRCA and 2 BRCA genes 1 A number of breast cancers have a high rate of instability They show a genome. Breast cancer is a heterogeneous disease and has been for years It is believed that tumors that are characteristic They have different biological, clinical outcomes and responses. They have different treatments. Breast cancer based on receptor status is in the tumor. With (ER, PR, HER growth hormone 2) using these markers, four functional groups can be used identified tumors: a. Negative HER Hormone receptor positive and Negative (HER triple tumor b) Negative hormone receptor and negative) With or without HER expression c) Tumors with overexpression Hormone receptor .

Interests conflict
The researchers declare that they have no conflict of interest.

Faegheh Miryousefiata et al.

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