

An overview of pathophysiology in breast cancer

Mohammadreza Khanmohammadi*

Department of Chemistry, Imam Khomeini International University, Iran

Breast cancer is a complex disease with a multifactorial pathophysiology. The pathogenesis of breast cancer involves a combination of genetic, hormonal, and environmental factors. The most common genetic mutations associated with breast cancer are BRCA1 and BRCA2, which are tumor suppressor genes. Mutations in these genes lead to a loss of function, resulting in an increased risk of developing breast cancer. Other genetic factors include the PI3K/AKT pathway, which is often overactivated in breast cancer, leading to uncontrolled cell growth and proliferation. The RA/MEK/ERK pathway is also involved in the pathophysiology of breast cancer, and its dysregulation can contribute to tumor progression. Hormonal factors, such as estrogen and progesterone, play a significant role in the development and growth of breast cancer. Environmental factors, including diet, lifestyle, and exposure to carcinogens, also contribute to the pathophysiology of breast cancer. The pathophysiology of breast cancer is highly heterogeneous, and understanding the underlying mechanisms is crucial for developing effective treatment strategies. In this review, we provide an overview of the pathophysiology of breast cancer, focusing on the genetic, hormonal, and environmental factors that contribute to its development and progression.

The pathophysiology of breast cancer is a complex process involving multiple factors. Genetic mutations, such as BRCA1 and BRCA2, are key players in the pathogenesis of breast cancer. BRCA1 and BRCA2 are tumor suppressor genes that play a critical role in maintaining genomic stability. Mutations in these genes lead to a loss of function, resulting in an increased risk of developing breast cancer. The PI3K/AKT pathway is another important signaling pathway involved in the pathophysiology of breast cancer. Overactivation of this pathway leads to uncontrolled cell growth and proliferation. The RA/MEK/ERK pathway is also involved in the pathophysiology of breast cancer, and its dysregulation can contribute to tumor progression. Hormonal factors, such as estrogen and progesterone, play a significant role in the development and growth of breast cancer. Environmental factors, including diet, lifestyle, and exposure to carcinogens, also contribute to the pathophysiology of breast cancer. The pathophysiology of breast cancer is highly heterogeneous, and understanding the underlying mechanisms is crucial for developing effective treatment strategies. In this review, we provide an overview of the pathophysiology of breast cancer, focusing on the genetic, hormonal, and environmental factors that contribute to its development and progression.

***Corresponding author:** Mohammadreza Khanmohammadi, Department of Chemistry, Imam Khomeini International University, Iran, E-mail: mohammad.k@gmail.com

Received: January 06, 2021; **Accepted:** January 20, 2021; **Published:** January 27, 2021

Citation: Khanmohammadi M (2021) An overview of pathophysiology in breast cancer. J Cancer Diagn 5:1.

Copyright: © 2021 Khanmohammadi M. This is an open-access article distributed under the terms of the Creative Commons Attribution License, which permits unrestricted use, distribution, and reproduction in any medium, provided the original author and source are credited.