Breast cancer, the most common cancer and one of the most common causes of death among women, is widely recognized as a heterogeneous disease with a long natural history. Indeed, most if not all researchers working with breast cancer would agree that it is a truly diverse disease in terms of cause, tumor metastatic capacity, and time to metastatic spread of disease spanning between months to decades after diagnosis. Therefore, identifying factors associated with the risk to develop invasive disease, together with factors associated with the lifetime risk of fatal breast cancer, continues to be vital to help guide preventive strategies and treatment. The study by Taparra et al was conducted in the context of long-term follow-up of women in Hawai’i to evaluate risk factors associated with developing invasive breast cancer after diagnosis of ductal carcinoma in situ (DCIS). The study used the Hawai’i Tumor Registry, one of the original National Cancer Institute Surveillance, Epidemiology, and End Results registers, to include women aged 20 years or older who received a diagnosis of first primary DCIS between 1973 and 2017. Interestingly, the authors conclude that Native Hawaiian, Filipino, and Japanese women were more likely to develop invasive breast cancer after DCIS compared with non-Hispanic White women and that younger women were more likely to develop invasive breast cancer after DCIS compared with older women.

It is known that a history of benign breast disease (BBD) can be a risk factor for breast cancer. For instance, benign proliferative disease with or without atypia is known to be associated with an increased risk, whereas it is less clear whether nonproliferative diseases are associated with the risk of developing invasive disease. Benign breast diseases are common, and women are at risk of BBDs throughout their lifetime. It is therefore important to understand the cause of and the risk factors associated with BBDs to apprehend the associations between BBD and malignant breast disease. However, the cause of BBDs has been relatively unexplored during the last decades, despite the increasing incidence of BBDs detected by population-based mammography screening. This lack of understanding may in part have been because of, or at least been complicated by, the lack of consensus of systematic and in-detail pathologic disease classification to enable comparison of study findings.

A recent study suggested that the risk of the most common BBDs covers a wide and relatively young age range and that the risk is associated with hormonal factors and age. Interestingly, the risks of proliferative and nonproliferative BBDs were associated with a family history of breast cancer but not with all the traditionally recognized risk factors for hormonal breast cancer. A positive family history of breast cancer is also known to be associated with an increased risk of developing invasive disease after a BBD diagnosis, and the risk has been suggested to be further elevated in younger women. An increased risk of developing invasive breast cancer after DCIS was also seen among younger women in the study by Taparra et al. This finding is important because of the association between premenopausal patients with breast cancer and an increased risk of fatal disease.

For the future, an improved understanding of the risk factors associated with developing invasive breast cancer after BBD (and DCIS) is important to guide and optimize the clinical management of patients at higher and at lower risk of breast cancer. The study by Taparra et al, which included a long-term follow-up of women after DCIS diagnosis, underlines the importance of the racial and ethnic disparities and a younger age in the rates of invasive breast disease.