Breast cancer is by far the most frequent cancer among women and ranks second overall worldwide. It is the most frequent cancer in Singaporean Chinese, Malay and Indian females, with an age-standardised incidence rate of 59.5 (95%CI=58.1-60.8) per 100,000 per year. It is the leading cause of cancer mortality in females here with an age-standardised rate of 13.7 (95%CI=13.1-14.4) per 100,000 per year. However, with increasing access to various modes of communication such as the email and internet, women worldwide are vulnerable to the slew of information downloaded to them, which may lack stringent regulation. This adds needless stress and anxiety, and as physicians, it is our responsibility to debunk these false beliefs. The following are some of the more common myths encountered in our clinical practice.

Myths about Epidemiology

If I am a man, I will never get breast cancer. Men can and do get breast cancer, albeit more rarely as compared to females. The Singapore Cancer Registry showed that between 1968 and 2002, 61 men were diagnosed with breast cancer, compared to 16,184 women, making up less than 0.5% of all breast cancer patients in Singapore. Male patients are often an isolated minority lacking social and psychological support.

The median age of onset is in their mid-60s. Although the majority of them have no identifiable risk factors, several have been cited, mainly related to previous exposure to radiation as treatment, hormonal factors or genetics. Hormonal factors include a relative imbalance in oestrogenic versus androgenic influences occurring in conditions such as liver cirrhosis, testicular pathology or prolactinoma. About 15-20% of male breast cancers have a family history of the disease, compared to only 7% of the general male population. Genetic causes include Klinefelter’s syndrome, Cowden’s syndrome (PTEN gene), inherited mutations in BRCA2 and mutations in mismatch repair genes like hMLH1. Symptoms at presentation are similar to that of females, although nipple or chest wall involvement may be more frequent because of the scarcity of breast tissue.

If no one in my family has had breast cancer, I am safe from it too. Only about 15-20% of breast cancers have a positive family history. The associated risk is influenced by the age of onset and the number of female first-degree relatives with this cancer on both the maternal as well as paternal side; those having relatives with breast cancer at <40 years old and a greater number of involved first-degree relatives have a much higher risk. However, other risk factors include age, race, presence of atypical lesions (such as atypical ductal hyperplasia), age of menarche/ menopause, parity,

Breast Cancer Facts

• Breast cancer is the most common cancer amongst women in Singapore.
• Life-time risk of breast cancer in Singaporean women who live up to 85 years old is one in 20.
• Screening mammogram is the most effective way of detecting breast cancer early. Mammogram can detect breast cancers up to two years before it becomes detectable by doctor or patient.
• Breast cancer, when diagnosed early, is rarely a death sentence. Breast cancer is highly treatable.
• Breast cancer mortality death rates have been declining in USA and England, probably due to a combination of early detection and improving treatments.
• Fight breast cancer. Follow screening guidelines for breast cancers. Screening mammography should be encouraged every year for your patients from age 40 years old, and once every two years for women age 50 years and above.
• All breast lumps in women above 30 years old should be followed by a thorough investigation and probably a biopsy, regardless of mammogram results.
If I have lumpy breasts, I am at a higher risk of getting breast cancer. Most lumpy breasts are due to non-proliferative breast lesions or proliferative lesions without atypia. Non-proliferative breast lesions such as simple breast cysts, benign epithelial-related calcifications, papillary apocrine changes or mild hyperplasia without atypia do not confer an increased breast cancer risk. Proliferative lesions without atypia such as usual ductal hyperplasia, intraductal papillomas, sclerosing adenosis, and fibroadenomas are associated with a small 1.5 to 2 times increased risk. Atypical ductal or lobular hyperplasias, however, causes a substantial increase in relative risk of 3.7 to 5.3 times. Lumpy breasts may make breast self-examination more difficult; hence it is important to advise starting breast self-examination early – at around 20 years old – so as to familiarise oneself with what is normal or new.

Hormonal replacement therapy or oral contraceptives will cause breast cancer. The risk of breast cancer does not appear to be increased in women who receive combination hormone replacement therapy for less than four to five years, but increases with duration thereafter. The Women’s Health Initiative trial consisted of 16,608 post-menopausal women aged 50-79 years randomly assigned to receive combined oestrogen-progesterone therapy or placebo from 1993 to 1998 at 40 clinical centres in the United States. Oestrogen plus progestin significantly increased total (hazard ratio [HR], 1.24; P<0.001) and invasive (HR, 1.24; P=0.003) breast cancers compared with placebo. Hence, we would recommend using the lowest doses of hormone replacement therapy possible and minimising treatment duration.

Epidemiological studies have, generally, not demonstrated a strong association between oral contraceptive (OC) use and breast cancer. In the Nurses’ Health Study, they observed no overall relationship between duration of OC use and breast cancer risk. Among women <45 years, the relative risk for using OCs for ≥10 years was 1.07 (CI=0.70-1.65) compared with never-users. In a population-based case-control study consisting of 4,575 women with breast cancer and 4,682 controls aged 35-64 years old, there was no increased risk related to duration of use, dose of oestrogen, age of initiation or those with a family history of breast cancer. Although an increase in risk has been reported in some meta-analyses, criticisms have been raised regarding the low percentage of women (only 40%) who had previously used OCs and a lack of follow-up data. There is unclear evidence that OCs increase breast cancer risk in BRCA 1/2 carriers.

Breast implants can raise your risk of breast cancer. Women with cosmetic breast implants are at no greater risk of getting breast cancer. In a pooled long-term follow-up study of almost four decades, involving 3,486 Swedish and 2,736 Danish women who underwent cosmetic breast implantation between 1965 and 1993, cancer incidence through 2002 was ascertained through nationwide cancer registries and no association was found with increased breast cancer incidence.

Myths about Screening
Mammograms can cause cancer due to radiation exposure. Screening mammography has been shown to decrease mortality by identifying early stage breast cancer. There is no evidence that routine screening mammography in the general female population, starting at 40 years of age, is associated with increased cancer risk from radiation. Nonetheless, the American College of Radiology has recognised that it is important to minimise the radiation dose each time. Hence, they recommend that the mean glandular dose exposure for 4.2cm of breast tissue should not exceed 0.3rads (3mGy) per image. Modern mammography systems typically utilise a mean glandular dose of 0.1-0.2rads (1-2mGy) per exposure. The effective dose of radiation received per mammogram is 0.7mSv. This miniscule dose is equivalent to exposure to the natural environment (background radiation) received over three months. With new technological advances like digital mammography which uses a lower radiation dose than film screen mammography, radiation dose should not be a worry.

MRIs or ultrasound scans of the breasts are better than mammograms. Magnetic resonance imaging (MRI) of the breast should not be used in place of mammograms for routine breast screening. MRIs have a higher sensitivity but lower specificity compared to mammograms in the high-risk population. The lower specificity could lead to unnecessary follow-up procedures. Nevertheless, MRIs can be used in combination with mammograms in young women who are BRCA mutant carriers or those with an approximately 20-25% or greater lifetime risk of breast cancer as per American Cancer Society guidelines. The primary roles of ultrasound scans of the breast are to evaluate abnormal mammographic findings, or to provide radiological guidance for breast biopsies. It can be used as first line, however, in pregnant women, those who are <40 years old who present with a breast lump, or to evaluate breast implant abnormalities (although MRIs are superior for the latter). The majority of young women have dense breasts. Increased breast density can decrease mammographic
sensitivity, and the use of digital mammography is preferred here. The role of adjunct MRIs or ultrasounds to mammograms in this population is not established.

Breast cancers always present as lumps. As many as 10% of patients present with breast pain and no breast mass. Less common symptoms include nipple discharge, nipple erosion or ulceration, diffuse erythema of the breast (inflammatory breast cancer which can mimic cellulitis), axillary adenopathy with an occult breast primary cancer (0.3-0.8% of newly diagnosed cases), and symptoms associated with distant metastases.

Myths about Treatment and Subsequent Care

Having a mastectomy instead of breast conservation surgery will ensure that the cancer will be eliminated. Several prospective randomised trials and a meta-analysis showed no difference in survival between having a mastectomy versus having breast-conserving surgery plus radiotherapy.16

I should not get pregnant after breast cancer. Pregnancy is contraindicated in women receiving chemotherapy or anti-hormonal therapy. If not on any active therapy, it is generally recommended to wait at least two years, primarily because most recurrences occur around this time, although because this is not based on strong scientific evidence, an earlier pregnancy may not necessarily be harmful. There is no increased cancer risk to the offspring. Pregnancy generally does not affect breast cancer recurrence after successful treatment. A US cohort study demonstrated that after adjustment for stage of disease and age at diagnosis, study region, diagnosis year, and race/ethnicity, women with births occurring 10 months or more after diagnosis had a decreased risk of dying (RR 0.54; 95% CI=0.41-0.71), relative to women without subsequent births.17 Milk production may be reduced on the breast which received previous irradiation, if lumpectomy had transected many milk ducts or was close to the nipple-areola complex. Generally, breast feeding from the irradiated breast is not advised due to difficulties in managing possible mastitis. Women who have received prior potentially cardiotoxic systemic therapy such as anthracyclines or trastuzumab should have a cardiac assessment prior to contemplating pregnancy.

It is hoped that with greater education and breast cancer awareness among physicians, and the general population, many of these myths will become merely beliefs of the past, as embodied in the quote by John Fitzgerald Kennedy: “The greatest enemy of the truth is very often not the lie – deliberate, contrived and dishonest – but the myth –persistent, persuasive and unrealistic.”

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**References**