Breast Cancer

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Breast cancer is the most common malignancy in women in the United States. There is an estimate of 249,260 new cases of breast cancer in 2016 (*CA Cancer J Clin 2016; 00:0*). Women in the United States have a one-in-eight lifetime risk of developing breast cancer. Owing to an increased rate of detection, breast cancer mortality is declining due to the combined benefit of early diagnosis and more effective treatments.

Risk factors for breast cancer include: older age, female gender, family history of breast and/or ovarian cancer, genetic factors, obesity, sedentary lifestyle, and alcohol use.

Breast cancer molecular characteristics include the expression of the following receptors: ER negative or positive, PR negative or positive, HER2 negative or positive. Your treatment plan will be determined by these findings as well as the stage of your cancer and your overall health.

Your Personalized Report (based on the information you provided)

This is a 54 year old postmenopausal female with newly diagnosed stage III breast cancer.

Your breast cancer characteristics include ER positive, PR negative and HER2 positive

It is imperative that your breast cancer treatment team include: medical oncologist, radiation oncologist, and a breast surgeon, as your treatment often involves a combination of surgery (if operable), radiation (if indicated), and chemotherapy, hormonal therapy and/or targeted therapy.

Surgery: The goal of surgery is to completely remove the cancer. This is measure by whether or not the surrounding tissue (margin) is free of cancer cells. In some cases a simple lumpectomy (removal of tumor) may be appropriate; in others, mastectomy (complete removal of the breast) is required. Your breast surgeon will determine which of these options is applicable for you, considering such factors as the size of the tumor and the breast size for best cosmetic outcomes. The breast surgeon is generally the first physician you meet with immediately following your diagnosis. If you decide to undergo a lumpectomy then you will also need post-operative radiation to the area. The goal of radiation is to destroy any cancer cells that you may still have after surgery despite clear margins. Whether you require radiation will be determined by your radiation physician (this can be omitted in low risk case in elderly patient). Currently, there is no difference in overall survival between lumpectomy plus radiation versus total mastectomy (NEJM 2002; 347: 1233-1241). You will need to discuss your individual case with your breast surgeon in order to determine which option best suits you and your lifestyle.

Medical therapy: The role of chemotherapy is to destroy any residual cancer cells after surgery that are not visible to the naked eyes. Targeted therapies are treatments that target specific features of cancer cells, in your case, it is the growth-promoting protein known as HER2 neu (or just HER2) - the drugs name are trastuzumab (Herceptin) and pertuzumab, they are generally used in combination with chemotherapy.

The current recommendation for your HER2 positive breast cancer is that chemotherapy be given prior to surgery (neoadjuvant) with combination trastuzumab 6mg/kg (first dose 8mg/kg), carboplatin AUC=6,

docetaxel 75mg/m^2 and pertuzumab 420mg (first dose 840mg) given intravenously every 21 days for a total of 6 cycles, after surgery then trastuzumab 6mg/kg given intravenously every 3 weeks for 40 weeks (to complete 1 year of trastuzumab). The goal of neoadjuvant is to reduce the size of the tumor (if it is inoperable in its current state) or to shrink the tumor enough to allow lumpectomy.

If you had breast surgery prior to chemotherapy then the adjuvant regimen should include:

1.Doxorubicin 60mg/m^2 and cyclophosphamide 600mg/m^2 (AC) given intravenously every 2 weeks for a total of 4 treatment cycles. All cycles are given with myeloid growth factor support (Neulasta), followed by paclitaxel 80mg/m^2 and trastuzumab 2mg/kg (first dose 4mg/kg) given intravenously weeky for twelve weeks followed by trastuzumab given intravenously every 3 weeks for 40 weeks (to complete total one year of trastuzumab).

or

2. Docetaxel 75mg/m^2, carboplatin AUC 6 and trastuzumab 2mg/kg (first dose 4mg/kg) (TCH) given intravenously every 21 days for 6 total treatment cycles and trastuzumab 6mg/kg given intravenously every 3 weeks for 40 weeks (to complete total one year of trastuzumab).

There is no difference in survival between these two chemotherapy regimens. Which regimen you will receive will depend on your overall health, as well as what better suits your lifestyle. If you receive chemotherapy, then you will start hormonal therapy after chemotherapy.

The role of hormonal therapy is to stop or slow the growth of hormone sensitive tumors (ER or PR positive) by blocking the body's ability to produce hormones or by blocking the action of hormones on breast cancer cells. Hormonal therapy with an aromatase inhibitor (anastrazole 1mg pill daily or letrozole 2.5mg daily) x 5 years or tamoxifen 20mg pill daily for 5 years - 10 years is prescribed (based on the ATAC, BIG-98, ATLAS and MA -17 trials). Adjuvant tamoxifen decreases about 30% the odds of recurrence and death (Lancet 2005;365:1687). The duration of treatment can be discussed further with your treating physicians in detail at a later time, it will depend on your individual tolerance to the treatment.

Cardiac echo monitoring is recommended before treatment and at 3, 6, and 9 months subsequently as trastuzumab caries a small to moderate risk of toxicity to the heart.

Survivorship care plan:

Upon completion of your treatment plan, you will follow up with your treating physician for a physical exam every 4-6 months x 5 years and yearly subsequently with yearly mammography (except if having mastectomy). During these visits it is important for you to discuss any residual treatment side effects or new symptoms you may be experiencing as these symptoms may be indicative of either treatment side effects or new developing conditions. Bone health is monitored yearly with bone density if you are on medication drug with an aromatase inhibitor (anastrazole, letrozole or exemestane).

Your treating physician will calculate your chemotherapy and targeted therapy dose based on your height and weight at each visit. Although there are common side effects associated with therapy, not everyone experiences the same side effects. Fortunately, with modern oncology, there are now supportive measures that have the potential to control most of the chemotherapy related side effects such as white blood cells growth support (Neulasta) and anti-nausea medications (Zofran, Emend).

Please print this report and discuss the treatment options with your treating physicians. Whether this treatment regimen is best suited for you will be determined by your treating physician, who will consider the physical evaluation prior to treatment, your overall health and ECOG performance status (ability to function with daily activities) to decide your treatment.

ECOG PERFORMANCE STATUS

Grade 0: Fully active, able to carry on all activity.
Grade 1: Restricted in physically strenuous activity but ambulatory and able to carry out light house work, office work.
Grade 2: Ambulatory and capable of all self-care but unable to carry out any work activities.
Grade 3: Capable of only limited self-care, confined to bed or chair more than 50% of waking hours.
Grade 4: Completely disabled. Cannot carry on any self-care. Totally confined to bed or chair.

(*Am J Clin Oncol 1982: 5: 649-655*)

In addition to the recommended treatment options, data consistently show that healthy diet and exercise also play a key role in long term survival and quality of life in breast cancer. Please ask your treating physicians for information regarding the diet and exercise regimens that best fit you and your lifestyle to mazimize the effectiveness of your treatment.

You are not alone in your cancer journey, there are multiple support groups and patient-advocates that will help you to navigate the world of cancer. Please ask your treating physician for a referral in your area.

Your first few months after the diagnosis will be a time of change, as you will be determining what is normal for you now. As you begin recovery, you can also expect things to keep changing. These changes may be in the way you eat and the things you do. Although these will be major concerns for you, you should also focus on your follow-up care, as this will help you and your family know what to expect and what lifestyle changes you need to make.

Evidence based health advices for cancer patients include:

DIET MODIFICATION

- Low in redmeat and high in fruits and vegetables.

WEIGHT REDUCTION AND PHYSICAL ACTIVITY

- Physical activity is protective for breast cancer, colorectal cancer, lung cancer and prostate cancer.
- Recent data showed 300 min/week of moderate activity benefit in breast cancer.

SMOKING CESSATION

- Tobacco use is the most avoidable risk factor , it is the cause of 1/3 of all cancers in the US.
- Cigarette smoking has been linked to cancer of the lungs, larynx, oropharynx, esophagus, kidney, bladder, pancreas, and colon.

SUN AVOIDANCE

- Protective for nonmelanoma skin cancers (basal and squamous cell).
- Recent trial confirmed that sunscreen use can reduce risk of melanoma as well.

Best,

The OncoGambit Team

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