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Advances in management of breast cancer

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Breast cancer is one of the most common cancers diagnosed in women in India. Infact latest data suggest that in urban centres like Delhi and Bangalore breast cancer has now emerged as the most common cancer in women.

Successful treatment of breast cancer involves all the three modalities of cancer treatment including surgery, chemotherapy and radiation therapy.

While surgery and radiation therapy are important for local control of disease, chemotherapy is responsible for prevention of recurrence in distant organs.

Advances in Chemotherapy supportive care

Most women planned for chemotherapy are really worried about the possible side effects of treatment. Chemotherapy drugs Act by killing fast growing cells. In a patient, tumour cells are fast-growing; however there are a number of normal body cells which grow fast as well. One of the reasons for side-effects of chemotherapy is the impact of these drugs on these normal yet fast growing cells. Therefore it is not uncommon for patients to have hair loss, alterations and fall in white blood cell count leading to neutropenia and infection after chemotherapy administration.

Prevention and treatment of chemotherapy related side-effects has been a major focus of attention for doctors treating cancer all over the world. In the past decade we have seen major advances in management of the side-effects.

One of the main side effects of chemotherapy for most patients has been hair-loss. This is particularly difficult for women with cancer. On chemotherapy for breast cancer, hair loss usually starts manifesting itself in the third or the fourth week and reaches its peak by the end of the third or the fourth cycle. While most patients have complete hair growth after the end of chemotherapy, the cosmetic effect of this side effect can be very troublesome for some patients particularly for young women. Not surprisingly, there has been a persistent search for ways to prevent hair loss.

While most of the interventions to prevent hair loss including drugs, creams and oils have been unsuccessful so far, there has been a lot of interest generated by the application of ice packs on scalp during the chemotherapy. In fact now there are commercially available scalp cooling Machines which can be used to prevent hair loss. Most of the research these devices

have been done in patients with breast cancer. With the use these devices the rate of hair less has been halved. In other words a significant number of patients May prevent hair loss which leads to noticeable balding. Importantly these machines are safe, easy to use, and do not lead to increased chances of recurrence of breast cancer. While they do not yet guarantee 100% Prevention of hair loss, they are an important advance in this direction.

Cancer treatment can lead to suppression of immunity through various ways, including suppression of growth of white cells that are crucial for fighting infections, use of steroids, or use of drugs that have an inherent immunosuppressive effect.

Chemotherapy used for treatment of breast cancer can often lead to suppression of white blood cell counts. Overall the chance of such WBC suppression is less than 20 percent. However, medical oncologists, based on their clinical judgment and depending on general condition of the patient, have now got the benefit of using “Growth Factors” which are injections that can boost growth of white blood cells thereby preventing immunosuppression. Additionally, prevention of infections may be tackled by using preventive antibiotics and anti-fungal. These injections are widely available, easy to administer and associated with minimal side effects. In fact with the availability of these injections, it’s become possible to intensify chemotherapy treatment which is associated with even better outcomes of treatment.

Personalised Chemotherapy for Breast Cancer Treatment

Chemotherapy in breast cancer after surgery has been shown to prevent recurrences and improve survival. A standard method to decide the type and quantum of treatment for breast cancer has been Disease stage. Most patients with Breast Cancer in India are candidates to receive chemotherapy after surgery. A few years ago, all patients with breast cancer would end up receiving the same chemotherapy. Research has now shown that not all breast cancers are the same. While there are some which grow relatively slowly and therefore have less chances of recurrence and may not even require chemotherapy, there are others which are much more aggressive and associated wit Faster growth and higher chances of recurrence and death. This, referred commonly to as Disease biology, is increasingly playing a role in determining appropriate treatment for patients with cancer.

Modern chemotherapy regimens take into account these factors and individualise the chemotherapy regimens as per the Breast cancer subtype that the patient is suffering from.The variations may involve use of different drugs for different patients, variations in time interval between two cycles(with chemotherapy delivered at every 2 weeks for the more aggressive cancers), the number of cycles of chemotherapy, the duration of treatments and usage of targeted therapy in appropriate cases. Apart from Disease biology, patient conditions and fitness for treatment also impacts the choice of the chemotherapy regimen.

One of the most dramatic advances in breast cancer has been the use of gene expression profiling to determine the chances of cancer recurrence and therefore the need for chemotherapy in select patients with early breast cancer. While most of these patients with early breast cancer would be able to avoid chemotherapy, the gene expression profiling will reveal a significant percentage of patients to have a higher chance of recurrence, which indicates the need for treatment with chemotherapy. While these tests still remain costly, there are newer cheaper options emerging which should facilitate better usage of these tests and ensure a more scientific, rational and personalised choice of treatment, most important of which is to quantify the benefit and need of chemotherapy in early breast cancer cases.

Ovarian suppression for improving survival for Breast Cancer

Nearly 60 to 70 % of breast cancer patients have tumours that express estrogen and progesterone receptor. In simpler words, the growth Of these tumours is dependant on bodies endogenous estrogen And progesterones. In women who have not yet attained a menopause, the source of these hormones are the ovaries and body fat. Therefore, hormonal therapy is an important tool in the treatment of these tumours and preventing a recurrence. While traditional hormone therapy has focused on prevention of binding of these hormones to the Tumour cell or reducing their production from body fat, recent research suggests that direct suppression of ovarian function adds to the benefit of standard hormonal therapy. These are particularly useful in women in more advanced tumours and those who are less than 35 years of age.

There are various methods of ovarian function suppression which include surgical removal of ovaries or radiation of the ovaries. An easier and reversible method of ovarian function suppression is monthly injections. These injections can start during or after chemotherapy, and are typically continued for a few years along with hormone therapy. They induce an artificial menopause which means that the treating doctor needs to monitor for changes associated with menopause and take

suitable preventive and corrective measures.

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