

BONE MARROW TRANSPLANT FOR METASTATIC BREAST CANCER

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There has been much work to improve the prognosis of women with metastatic breast cancer. Metastatic breast cancer means the cancer has left the breast and traveled. The extent of spread can either be regional, most commonly surrounding lymph node areas, or systemically which is spread throughout the body.

The appeal of systemic chemotherapy is that it is devised to go most everywhere in the body in an attempt to kill cancer cells. Generally higher doses of chemotherapy have been limited by the ability of the patient's bone marrow to regenerate blood elements and thus, its blood counts.

The rationale of stem cell transplantation is that the blood cell stem cells are infused after the chemotherapy to re-populate the bone marrow and produce blood cells so that the patient can tolerate higher than what would otherwise be considered safe doses of chemotherapy.

A recently published study by Rowings et al, published in the prestigious JAMA evaluated the results of such treatment. Reported were 1188 women with advanced breast cancer who received transplantation at 63 centers. The patients had advanced - either metastatic or locally recurrent-breast cancer and has been transplanted between January 1, 1989 and January 31, 1995.

Excluded were patients with only axillary or internal mammary lymph node sites. The axilla is the area about the armpit and internal mammary are located just behind the breast bone or sternum. These are the first usual locations of metastatic breast cancer.

Women with supraclavicular lymph nodes a site above the clavicle or collar bone involved by cancer, were included. Also, included were women with recurrent disease in the same breast or lymph nodes after a period of being free of cancer.

Women with cancer in the opposite breast were excluded because it was impossible to know whether these patients had metastatic or a second new primary.

The outcome was scored as a treatment failure if there was death, disease progression or recurrence after complete response.

A variety of factors were evaluated to predict treatment failure. There were a variety of factors that worsened the prognosis. Included in the worse prognosis group for transplant included an age greater than 45 years, Karnofsky performance score of less than 90% - meaning less than normal activity range and hormone receptor negative cancers.

Proteins are present on the surface of cancer cells which bind hormones. It has been known for many years that women with these hormone proteins responsible for binding hormones on the cell have a more favorable prognosis. These are commonly referred to estrogen receptors and progesterone receptors. Essentially every woman with invasive cancer should know her receptor status.

Women who had received prior chemotherapy before the stem cell transplant had equal risk of recurrence after such treatment. Although it is noted that women who received adjuvant or additional chemotherapy after diagnosis followed by disease-free interval of greater than 18 months had a higher risk of failure than those who did not have adjuvant or additional treatment at the time of diagnosis. This would suggest that cancer cells learned resistance to the chemotherapeutic agents.

Adjuvant treatment is therapy after all the cancer has been removed to decrease its likelihood of recurrence. Prognosis was better if the metastases were confined to one or two sites distantly even including the brain or liver. The prognosis diminished if there were three or more such sites of metastatic cancer. This suggests bulky amount of cancer worsens outcome. Perhaps pinpoint radiation should be considered to this site to attempt to reduce cancer bulk at these recurrent sites.

Treatment failure of stem cell transplant was also predicted by response to prior chemotherapy. If patients had poor response or no response there was a greater likelihood of treatment failure with stem cell transplant. Post transplantation implementation of Tamoxifen or hormone therapy resulted in decreased failure rates if the woman's cancer had hormone binding protein present on her cancer cells.

It is interesting that the use of such simple treatment as Tamoxifen after transplant improved treatment outcome. Tamoxifen is usually administered twice a day in pill form of 10 milligrams each.

It is important to note that this study did not look at whether bone marrow transplant was superior to standard dose chemotherapy for advanced breast cancer. Other such studies have suggested that bone marrow transplant is indeed not better than standard dose therapy for metastatic breast carcinoma although there are still several ongoing studies.

The authors noted that some women with metastatic breast cancer are "very unlikely to benefit from receiving transplants; women with resistant disease, CNS metastases, three or more metastatic sites and those who have received adjuvant chemotherapy." CNS refers to the central nervous system and includes the brain and spinal cord.

The authors went on to say that "such women should probably not be considered for auto transplantation except in the context of clinical studies designed to test regimens or approaches that might affect this poor prognosis. On the other hand, women with limited site of metastases and complete response to conventional chemotherapy might be more likely to benefit from dose intensification to eliminate minimal residual disease. The current study predicted better transplantation outcome in such women, but the outcome may also be good with conventional chemotherapy."

It is always important to analyze data of large groups of patients treated. It may help prevent other patients from needlessly going through treatment that may have minimal beneficial effect and potential adversity.

In an accompanying editorial by Gradishar it was noted that, "at present, clinical research on breast cancer focusing on a variety of promising therapeutic strategies such as new immunotherapy agents, endocrine agents, antibody therapies, vaccines and autoangiogenesis agents. Ultimately these larger randomized trials should contribute to evidence base approach for selection of the most appropriate in efficacious therapy for patients who have breast cancer."

Of course, early detection - including self-examination, physician examination and frequent mammography are all important for every woman.