
BREAST CANCER TREATMENT

SURGERY

Modern breast surgery was first performed around 1890. At this time, William Stewart Halsted developed an operation which came to be known as the "Radical Mastectomy" or the "Halsted Radical Mastectomy". The procedure involved removing the entire breast, the skin and underlying fat, the lymph nodes in the armpit and the major and minor pectoral (chest) muscles.

Before this time, most women who had breast cancer died, either from the untreated disease, while undergoing extremely painful and often careless surgery (without anaesthetic), or afterward, as a result of serious wound infection or gangrene. The discovery of anaesthesia in 1846 made it possible for women to bear long operations. The realization that bacteria were the probable cause of wound infection resulted in women receiving better post-surgical care and fewer women dying from wound infection after surgery.

According to those who knew him, Halsted was a careful surgeon and a compassionate doctor. Besides describing his operative procedure in detail, he also laid down the principles for careful follow-up. He carefully watched the progress of women on whom he had operated and spent many hours in the laboratory studying breast cancer cells in an effort to better understand the disease. It was Halsted who first noticed that many women had recurrences of breast cancer. He suggested that only if women lived at least 5 years after their original treatment could they be considered cured.

His practice influenced the course of breast cancer treatment to the point where radical mastectomy was considered "the" treatment for breast cancer for nearly 80 years and 5-year follow-up has remained the standard by which most doctors measure success of the operation.

Surgeons, Halsted included, strove to improve on existing surgical techniques so that more women could be successfully cured of breast cancer. For a period of time, more drastic surgery, in the form of the "extended radical mastectomy", was promoted. This procedure involved the removal of more skin and the lymph nodes under the breast bone as well as the breast, the pectoral muscles and the armpit lymph nodes.

Radical (and extended radical) mastectomy is an extremely debilitating procedure. Women are left with a sunken chest wall, the potential for developing lymphedema (swelling of the arm caused by improper drainage by the lymph nodes), shoulder stiffness and lack of proper arm movement that sometimes lasts years. The operation is also frequently followed by pain since it cuts across the sensory nerves.

By 1924, doctors were beginning to question the necessity of such drastic surgery and were looking at the results of other forms of treatment. In the years that followed, studies were done, mostly in Europe and Canada, comparing 3, 5, and 10-year survival rates for women who had undergone radical mastectomies with those for women who remained untreated or who had received other forms of surgery. Numbers of women who survived over 5 years were, to the surprise of many, not much greater with radical mastectomy than they were with even no treatment. Results with less extensive forms of surgery were comparable to those for radical mastectomy.

Many different surgical treatments were tried:

- The "modified radical mastectomy" which involves removal of the breast, some fat, and most of the armpit lymph nodes. The chest muscles are left

intact. The modified radical, although it was still a disfiguring operation because the breast was still removed, eliminates the hollowness in the chest and reduces a woman's chances of developing arm swelling. In addition, because the pectoral muscles are preserved, the woman's arm remains stronger than it does after radical mastectomy.

- The "simple mastectomy" in which only the breast is removed, leaving the lymph nodes and the chest muscles intact. It avoids the sunken chest associated with radical mastectomy and greatly reduces the possibility of lymphedema. It is common for surgeons to check for the presence of cancer cells in the armpit lymph nodes prior to surgery. If cancer cells are found, a simple mastectomy can be followed by radiation therapy to the nodes.
- The "partial mastectomy" which is termed partial because, although the tumour and 2 or 3 centimetres of surrounding tissue are removed, some of the breast remains along with half the tissue and skin. Although the breast is partially saved with this procedure, a wedge of tissue and skin is removed and the breast can be quite disfigured. Radiation therapy is often advised after this form of surgery to kill any cancer cells that might remain in the rest of the breast.
- "Lumpectomy" which removes only the tumour mass and a small amount of the surrounding breast tissue, leaving the muscles, skin and lymph nodes. Again, radiation therapy is almost always recommended following lumpectomy to minimize, as much as possible, the chance of local recurrence.

A major argument against surgical techniques that do not remove all the breast has always been that they do not account for the multicentric nature of breast cancer, that is, its tendency to appear in another part of the breast or to develop in the opposite breast. Although there appears to be a greater possibility of cancer recurring in the breast(s) after less radical surgery, local recurrence has been shown to be less likely when the procedure is followed by radiation, and local recurrence of cancer in the breast in itself does not appear to affect long-term survival rates.

Partial mastectomy and lumpectomy are appealing to women because they do not involve complete breast loss and, according to most studies, they offer survival rates comparable to, or better than, more extensive operations, especially when they are combined with radiation and/or chemotherapy.

Today, most responsible surgeons recommend lumpectomy or, at least, partial mastectomy to women in the early stages of breast cancer along with radiation therapy (to kill any cancer cells that might remain in her breast) and/or chemotherapy if her cancer appears to have spread throughout her body. No matter what stage a woman's breast cancer might be in, every effort should be made to provide her with treatment that offers the best chances for survival, involves the least number of side effects, and is the least mutilating and debilitating.

Prophylactic Mastectomy

Prophylactic mastectomy, or preventive removal of one (or both) breasts in case they later became cancerous, is becoming more and more common. Prophylactic mastectomy is the removal of healthy breasts. A woman may have the operation suggested to her by her doctor if she has cystic breasts (a condition which by no

means puts her at a higher risk for breast cancer); if she has already had cancer in one breast; if she has a very strong family history of breast cancer; if she has a condition in her breast that is thought to be precancerous; or if she has lobular or ductal carcinoma in situ.

There are two types of prophylactic mastectomy: total removal of the breast (usually by simple mastectomy) or "subcutaneous mastectomy" in which the nipple and skin are left intact, but most of the breast tissue underneath is removed. Usually, a silicone implant is put in to "reconstruct" the breast. Although prophylactic mastectomies are recommended to women so that they no longer have to fear developing breast cancer, in the case of subcutaneous mastectomy, this is a false promise: the small amount of breast tissue (about 5%) that is left in the body could become cancerous.

The complications that can arise with subcutaneous mastectomy combined with replacement silicone implants are internal bleeding or infection at the time of the operation; fibrosis (an excess growth of connective tissue which hardens around the implant causing distortion of the breast); decreased blood supply to the area resulting in death of the skin/and or the nipple.

It is hard to see prophylactic mastectomy as anything but mutilation of women's bodies. It is one thing for a woman to have a cancerous breast removed (although complete removal of the breast is not always necessary, either). It is another thing for a woman to be told that she should have a healthy breast removed because it might develop cancer at sometime in her life, when even for so-called "high risk" women or for women with previous breast cancer, this would likely never happen. If a woman's breast does become cancerous at a later date, she can then decide what course of treatment to follow. Breast self-exam, examination of her breasts by a doctor, mammography and other diagnostic tools can be used to detect breast cancer at an early stage, when the chances for recovery are very high.

AFTER SURGERY

Prosthesis

Women who have had mastectomies are usually fitted with artificial breasts called prostheses. This is done mainly for appearance, so that a woman's breasts will look more uniform in clothing, however, a prosthesis can help to counterbalance the weight of the remaining breast and eliminate back strain that can be caused by uneven weight distribution.

Breast Reconstruction

Breast reconstruction is the rebuilding of the breast after it has been surgically removed.

Until recently, breast reconstruction was not readily available to women. Implants were not good (several different materials had been tried without success) and techniques for doing breast reconstruction were not well developed. Women who had undergone radical mastectomies, which, up until the early 70's was the vast majority of women treated for breast cancer, were not considered good candidates for reconstruction. The number of women for whom breast reconstruction produced satisfying results was greatly limited.

Up until about 10 years ago, the procedure was not covered by medical insurance and only wealthy women could afford the costly surgery. As well, most doctors and many women, for that matter, thought that women who sought breast reconstruction after mastectomy were emotionally unstable. Attitudes appear to be changing and it is becoming more socially acceptable for a woman to admit that she is having difficulty

living without her breast(s) and that she wants breast reconstruction.

The current procedure involves opening up the chest (through the original mastectomy scar, if possible) and placing an implant (a soft plastic bag usually filled with silicone gel) between the layers of muscle. The skin is then stretched over the implant and the incision is resewn. In some cases, one operation is all that is required. However, even the most experienced plastic surgeon often has to make adjustments to the size or shape of the reconstructed breast that require additional surgery. In any case, it takes a few weeks for the reconstructed breast to look rounded and a good 5-6 months for the implant to completely settle and assume its final shape.

If the nipple is not saved in the original mastectomy (as it usually is not), and if the woman chooses to have a nipple added to her reconstructed breast, she is usually encouraged to wait until the implant has settled so that the nipple can be placed as accurately as possible. The nipple and areola (the darker area around the nipple) can be obtained in several ways: either by taking part of the nipple from the other breast, by grafting skin from the woman's thigh, her vulva or the inside of her mouth (depending on the desired colour), or by removing the nipple at the time of mastectomy and "banking" it (attaching it to the woman's skin (usually on her stomach) to keep it alive) to be used when the breast is reconstructed.

The quality of the results depends on several factors. Women considering breast reconstruction should get all the information they can about the procedure, the type of implant the surgeon plans to use, about the possible complications that might result and the risks that are involved. The skill of the plastic surgeon is important. It is worth interviewing several plastic surgeons to find out about their skill and experience. Ask to see pictures — plastic surgeons who do breast reconstruction often have "before and after" photographs showing the results of their work.

Women who have had less radical forms of breast surgery usually end up with better results from breast reconstruction, although this is not always true: In 1977, at Emory University in Atlanta, Georgia, plastic surgeons developed a safe and reliable reconstruction procedure for women who had had radical mastectomies. The operation, called the "latissimus dorsi myocutaneous flap rotation," rotates skin and muscle from a woman's back to replace the skin and chest muscle removed by her radical mastectomy. Again, depending on the skill of the plastic surgeon performing the operation, the results could be very satisfactory.

The size and direction of the original mastectomy scar, the amount of skin that was removed and the way in which a woman's own body heals after surgery all play a part in determining the outcome of breast reconstruction. If a woman is considering breast reconstruction after surgery, she should discuss this fact with her surgeon before she has breast surgery.

Although reconstruction can be done at the same time as mastectomy, results are usually better if the woman waits at least a few months to give the original wound a chance to heal.

There can be problems with breast reconstruction. Aside from complications that can result from any form of surgery, things like infection, hematoma (the collection of blood in the space created for the implant) and death of the tissue or skin over the implant can occur with breast reconstruction. The implant can be poorly positioned in the first place or can migrate up or down within the chest causing the reconstructed breast to look distorted. Occasionally, fibrosis (excess growth of

connective tissue) will develop around the implant and the new breast will become hard and difficult to move. Minute quantities of silicone gel can migrate out of the implant and be absorbed by the woman's body. The effects of this are not known. The nipple, if it has been banked, can lose its colour.

Even the most beautifully reconstructed breast will never match the normal one exactly. As well, women have no erotic sensation in their reconstructed breast. They will merely look and feel more balanced.

RADIATION THERAPY

The power of X-radiation to destroy cells has been recognized since the beginning of the nineteenth century. Since that time, vast improvements have been made in radiation equipment and radiologists have refined their techniques and increased their knowledge about how radiation works.

All cells are susceptible to radiation. They are most susceptible when they are in the final process of dividing, or the "mitotic" phase, as it is called. Because cancer cells, by definition, divide more rapidly than normal cells, they are more often in this mitotic phase and, therefore, are more vulnerable to radiation.

Radiotherapists are learning to make better use of this vulnerable period. By dividing up doses of radiation and administering more precise amounts to the cells as they reach mitosis, they can gradually kill off more cancer cells and leave more normal cells relatively unharmed.

Radiation is used in several ways in the treatment of breast cancer: as a primary treatment for inflammatory breast cancer (see paper entitled "Breast Disease" written by the Vancouver Women's Health Collective); to control the spread of cancer in the breasts of women who cannot or don't want to undergo surgery; as "palliation" to alleviate pain caused by breast cancer that has spread, especially to the bones; to shrink large tumours down to an operable size; and, now, most commonly, as additional treatment to less radical forms of breast surgery.

For example, simple mastectomy (removing the breast but leaving the lymph nodes and the muscles intact) followed by radiation therapy to the armpit lymph nodes is a procedure that was developed in Scotland during the second world war. Survival rates for women following this operation compared favourably with those for radical mastectomy (see section on surgery). Since the mid-50's, a number of studies have been done in several countries showing comparable survival rates for women having had lumpectomies (removal of the lump only) followed by radiation, with those having had radical mastectomies.

Today, lumpectomy followed by radiation therapy to the remaining breast tissue is the treatment chosen by most women. With lumpectomy, women can keep most of their breast and radiation ensures, as much as possible, that any left over cancer cells in the breast will be destroyed.

Radiation therapy for breast cancer is done strictly to kill cancer cells within the breast. Occasionally, the surrounding lymph nodes are also irradiated in hopes of destroying any cancer that might be present there. However, it is now commonly understood that breast cancer cells being present in the lymph nodes can be a sign that the disease has metastasized (spread to other parts of the body). If this is the case, radiation therapy, even though it may destroy cancer cells in the breast itself, or in the lymph nodes, will not improve a woman's overall chances for survival. Once the disease has reached this stage, other forms of treatment, such as chemotherapy, are usually used.

Radiation therapy can cause complications. The tissue of some women is more sensitive to radiation than others. Scarring can result, the amount of which can be difficult to predict, and damage can be done to normal tissue, particularly if the dosage of radiation is too great. In some women, fibrosis (excess growth of fibrous tissue) may develop within the breast. Fibrosis can act to pull the breast upward and more firmly against the chest wall. Some women develop fine capillary dilations in the skin called "spiders" (telangiectases). Both fibrosis and capillary dilations are most likely to occur if there is an overlap of the radiation fields resulting in a double dose to an area. Doctors assure us that, with improvements in techniques that have been made over the last several decades, there is less damage now from radiation than there was in the past. Women considering radiation therapy for breast cancer should thoroughly investigate the clinic in which they plan to be treated and its equipment, as well as the skill and knowledge of the radio-therapist, to make sure that they get the best, most up-to-date treatment. A woman should not undergo radiation therapy if she is pregnant, because radiation can harm the fetus.

Radiation, in itself, has been shown to cause cancer which could appear 10-20 years after the woman has undergone treatment. Women who already have breast cancer need to consider whether, in their particular situation, the benefits of such a treatment are worth the risks. A woman's age, how far her disease has progressed, and what treatment alternatives are available are all questions she can look into.

CHEMOTHERAPY

Chemotherapy is a treatment for breast cancer that involves the use of "anticancer" drugs or chemicals (hence, the name "chemotherapy"). Chemotherapy is usually used after surgery to kill cancer cells that have been shed into the bloodstream or the lymph system by the original tumour. It is rarely used alone as a primary treatment for breast cancer.

Between 1953 and 1964, over 200,000 drugs were tested for their ability to kill cancer cells. So far, about 50 have been shown to be useful (with the least toxic effects) in the treatment of cancer. Of these 20 appear to be effective against breast cancer with some 8 being preferred by cancer specialists.

Anticancer drugs are toxic. They affect normal cells as well as cancerous ones. The search for the "perfect" anticancer drug (one that will kill cancer cells and leave normal cells unharmed) goes on. In the meantime, cancer specialists are trying to make use of some particular properties of cancer cells to increase the effectiveness of chemotherapy against breast cancer and minimize its effect on normal cells. Chemotherapy is most lethal to cells when it reaches them when they are doubling their genetic material (DNA). Cancer cells divide faster than normal cells, are in this so-called "S-phase" more often and are, therefore, more vulnerable to chemotherapy. According to cancer specialists, chemotherapy doses can be divided up and timed so that they kill as many cancer cells as possible and affect the least number of normal cells. Because hair and skin cells also reproduce faster than other normal cells, they, too, are more sensitive to chemotherapy. Hair loss and skin flaking are discomfiting conditions that often affect women undergoing chemotherapy.

Chemotherapy is administered by mouth or by injection, either weekly, monthly or, occasionally, on a daily basis. Women are often given small doses of the drug(s) to begin with and the doses are gradually increased until signs of toxicity (drug poisoning) show up. At this point, the doses are either decreased or the woman is

taken off the drugs entirely for a period of time to give her body (the normal cells being affected by the drugs) a chance to rest. Symptoms of toxicity include sore mouth, nausea, vomiting, and muscle spasm or weakness. These symptoms appear to be temporary and disappear when the drugs are withdrawn. Different combinations of drugs are tried in hopes of obtaining the best results with the least side effects.

Some doctors think that the benefits of chemotherapy are worth a woman going through what they consider minor discomfort. However, for a woman feeling the effects, the discomfort may not seem so minor. The choice about whether or not to undergo chemotherapy should ultimately be hers.

One potentially dangerous effect of chemotherapy is "immunosuppression". Several of the anticancer drugs suppress lymphocytes and white blood cells which guard the body against infection. Women on chemotherapy are more vulnerable to viruses and bacteria which, under normal conditions, their bodies could fight off. Taking a periodic rest from a chemotherapy regimen supposedly allows a woman's immune system a chance to "bounce back".

Many of the drugs used in chemotherapy have, themselves, been found to be cancer-causing.

Although until recently, chemotherapy was administered only if there was a recurrence of breast cancer, often years after original tumour had been removed, it is now usually given in conjunction with breast surgery and/or radiation therapy particularly if cancerous cells are found in the bloodstream or the lymph system and, therefore, have probably metastasized (spread) to other parts of the body. So far, according to one Vancouver breast surgeon, chemotherapy appears to have significantly improved survival rates for women whose breast cancer has spread beyond the breast.

The effectiveness of chemotherapy before surgery is being tested. However, before a breast lump has been removed and biopsied, there is no way of telling whether it is cancerous or, if it is, how far the disease has progressed. A certain percentage of women, even with breast cancer, will not need chemotherapy and, if this becomes common practice, these women will be exposed unnecessarily to anticancer drugs. Chemotherapy is thought by many doctors to be the "new hope" for breast cancer patients. Because of this, much emphasis is being placed on chemotherapy research.

HORMONE MANIPULATION

Hormone manipulation is based on the principle that the growth of some breast cancers is affected by hormones secreted by certain glands in a woman's body. Because fewer than half of all breast cancers respond to hormone therapy, it is important to establish whether a tumour is hormone dependent before therapy is undertaken. A test called a "hormone receptor assay" is performed on the tumour tissue (usually when the cancer is first treated) to determine hormone dependency.

Three endocrine glands secrete hormones that appear to have an effect on the growth of breast cancer: the ovaries, which secrete estrogen (before menopause) and progesterone; the adrenal glands, which produce androgens (male growth hormones) and estrogen (after menopause or if the ovaries have been removed); and the pituitary, which regulates the proper function and triggers glandular secretions of many endocrine glands in the body.

If a woman's tumour is estrogen dependent, attempts are made to lower the levels of estrogen in her body. This can be done by surgically removing the ovaries or the adrenal glands if the woman is menopausal, by using radiation on the ovaries to make them non-functional, or by administering drugs (usually synthetic

hormones) that suppress their function. Tamoxifen is a drug commonly used on women whose tumours are estrogen dependent.

Although hormone manipulation is sometimes done at the time of the initial cancer treatment, it is more common to merely file any information about positive hormone dependency noted in the hormone receptor assay. If a woman has a recurrence of cancer in her breast or if her breast cancer has spread (metastasized) and reappears later in another part of her body, then hormone manipulation can be done in an attempt to control it.

Hormone manipulation involves certain risks. Endocrine surgery (especially on the adrenals) is physically taxing and can be extremely dangerous. Synthetic hormones have been shown to cause cancer as well as a host of other health problems. Other effects of hormone manipulation are not known.

Evidence, so far, has shown that hormone manipulation does not cure cancer; it merely slows down or stops the growth of a cancer that needs certain hormones in order to grow. Many women who have undergone hormone manipulation therapy have shown positive improvement that has lasted months, even years (provided their tumours have been hormone-dependent). However, in most cases, the cancer has eventually recurred. More research needs to be done into the effects of many different hormones on the growth of breast cancer tumours before hormone therapy can be used successfully to treat breast cancer.

IMMUNOTHERAPY

Immunotherapy is based on the theory that certain substances in the body's immune system could stimulate the formation of cancer-fighting cells and that this response could destroy an invading cancer cell and leave normal cells unharmed. When exposed to similar carcinogens (cancer-causing agents), some individuals seem more susceptible than others to developing cancer. Presumably, there is an immune response in some people that prevents cancer from developing, or that destroys cells if they become cancerous.

Immunotherapy research is attempting to isolate specific factors that produce immunity to cancer in the hopes that they could be used to protect (by vaccination, for example) others from the disease. Here are some examples of the research that is being done:

- Two substances, a strain of tuberculosis bacilli known as baccille Calmette-Guerin (BCG) used to vaccinate humans against tuberculosis, and levamisole, an agent used to treat parasitic infections, have shown some ability to destroy cancer cells. However, the destruction is not permanent. Both agents have been tested on small groups of breast cancer patients and seem to work best in conjunction with radiation or chemotherapy. Because the sample patient groups were small and the tests lacked control groups, results are inconclusive. Further testing may be warranted.
- The cellular characteristics of some breast cancers seem to indicate immune resistance on the part of the woman harboring the disease. For instance, cancerous tumours in some women appear to be surrounded by a dense wall of fibrous tissue that keeps the cancerous cells from growing into the surrounding breast. These women need to be followed more closely to see how their bodies' immune system is able to fight and control the cancer.
- Viruses have been a major focus of cancer research for a number of years. Many scientists believe that cancer is caused by a virus and continue in their attempts to isolate cancer-causing or cancer-promoting viruses and to develop substances that will help the

body fight those viruses. However, so far, most studies concerning the role of viruses in cancer have been done with animals. There is little concrete evidence that viruses play a role in human cancer.

- Interferon is a protein produced in very small amounts by body cells that helps the body fight various viruses. It has been shown to be useful in about one-quarter of cancer patients but the results are not long-lasting. Newer and purer forms, that may yield more positive results, are being produced.
- One innovative form of therapy, that researchers think looks promising, subjects the patient's blood to Protein A (taken from the cell walls of a bacterium). When the blood is returned to breast cancer patients, their tumours have been shown to shrink by some 33 to 79 per cent.

Allergic reactions are being looked at as a form of immune response that might play a role in cancer prevention or treatment. In one small study, the skin of thirteen women with breast cancer was injected with two separate extracts, one from a breast cancer tumour, the other from the adjacent normal breast tissue. Six of the women developed sensitivity reactions to the cancer extract. None reacted to the normal breast extract. How this information can be used, other than providing greater understanding about the nature of cancer, is not certain. Investigation is continuing.

Obviously, more follow-up is needed in all areas. Larger and more controlled studies dealing with immune responses and cancer need to be done before immunotherapy can be considered a useful treatment for breast cancer.

HYPERTHERMIA

Heat therapy, or hyperthermia, is an experimental cancer treatment that is based on evidence that cancer cells don't like high temperatures. Cancer cells are believed to be more heat-sensitive than normal cells because cancer cells have poorer blood circulation and can't distribute the heat as well to other areas. In some experiments, heat-generating radiowaves have been directed at tumours that have not responded to other treatment. Other researchers are removing the blood from patients, heating it and then replacing it, either throughout the entire body or only at the specific tumour site.

Some believe that hyperthermia can be used to enhance the effect of chemotherapy or radiation (there is evidence that heat makes cancer cells more sensitive to radiation). It may also help by shrinking the tumour or by activating the immune system to more readily attack cancer cells.

At this point, hyperthermia is very experimental. Many problems need to be ironed out before it can be considered routine cancer treatment.

CONCLUSION

Currently, the practice for treating women with suspected breast cancer is as follows: surgery to remove the tumour so that it can be biopsied (the cells can be looked at under a microscope to see whether any are cancerous). The axillary (armpit) lymph nodes are usually looked at through a separate incision to see whether they contain any cancer cells. Other tests, including blood tests, urine tests, X-rays, and bone scans, are also done at this time to further "stage" the disease and see whether it has spread outside the breast.

Until recently, if a woman's breast tumour was cancerous, it was common to remove her entire breast. Instead nowadays, her breast is usually given radiation therapy

to kill any cancer cells that might be left after surgery. If cancer cells appear in the lymph nodes, the woman is encouraged to undergo chemotherapy. If a woman's tumour is found to be hormone dependent, hormone manipulation might be recommended.

Until several years ago, it was thought that merely removing the cancerous lymph nodes along with the breast would cure a woman of breast cancer. Cancer cells in the lymph nodes are now seen as a sign of metastasis (breast cancer cells having spread to other organs) and it is known that removing the lymph nodes will not necessarily affect a woman's chances for survival.

Although the woman certainly has some choice in the matter, the nature of her cancer, in other words, the size of the lump in her breast, whether there are cancer cells in her lymph nodes or her bloodstream, whether there are cancer cells in other parts of her body, as well as her age and her general state of health can influence what treatment will be recommended to her. These factors will certainly affect what her doctor considers her possibilities for treatment to be.

A word of caution about cancer treatment. The medical profession and cancer researchers, in particular, would have us believe that cancer treatment is safe and effective. But the fact is that conventional breast cancer treatments are still, in a sense, experimental. Long term survival statistics for breast cancer have not changed much over the last 80 years. All cancer treatments that are available involve risks to women's health that may or may not outweigh their benefits. Cancer treatment, typical of our disease-oriented Western medical practice, focuses on attacking only cancer cells and does not treat the body as a whole organism. The more understanding researchers gain about cancer (and they really know very little, comparatively), the more obvious it should become that conventional treatments are inadequate in getting rid of or preventing cancer.

There are probably more effective ways of treating cancer. Research is being done into more holistic forms of cancer treatment and prevention. Things like diet, vitamin therapy and stress reduction are being shown to be useful approaches to cancer treatment, however, because close to 100% of the money available for cancer research (from private foundations and from governments) goes into looking for more expensive and technologically advanced treatment methods and almost no money is given over to researching "alternative" treatments or ways of preventing cancer, we hear little about these therapies.

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