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Stages of Cancer [1]

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Key Messages:

- The stage of a cancer is used to help plan treatment and predict a person?s chance of recovery.
- Stage is usually determined by three factors: size and growth of the tumor, whether cancer has spread to the lymph nodes, and whether it has spread to other parts of the body.
- Other factors, such as grade, tumor markers, and tumor genes, may be used to help describe the cancer in more detail.

Staging is a way of describing where a cancer is located, if or where it has spread, and whether it is affecting the functions of other organs in the body. Doctors often use diagnostic tests to determine a cancer?s stage, so staging may not be complete until all of the tests are finished.

Knowing the stage helps the doctor:

- Plan treatment, including the type of surgery [3] that should be used and whether drug treatments such as chemotherapy [4] or radiation therapy [5] are needed
- Predict the risk of recurrence (the chance that the cancer will come back after the original treatment)
- Predict prognosis (chance of recovery)
- Talk about the diagnosis in a clear, common language with the entire health care team
- Determine treatment effectiveness
- Compare larger populations with the same diagnosis as part of cancer research to evaluate new, more effective treatments

One tool doctors use to describe a cancer?s stage is the TNM system from the American Joint Committee on Cancer (AJCC) [6]. This system examines three factors: the size and location of the tumor (Tumor, T), whether cancer cells have spread to the lymph nodes located near the tumor (Node, N), and whether the tumor has spread to other parts of the body (Metastasis, M). The results are then combined to determine the stage of cancer for each person.

There is a separate TNM system for each type of cancer. However, general descriptions of the TNM staging system are listed below. Learn more specific staging information for each type of cancer [7].

T: The letter "T" plus a number (0 to 4) is used to describe the size and location of the tumor, including how far the tumor has grown into nearby tissues. A larger tumor or a tumor that has grown more deeply into the surrounding tissue is given a higher number. For some types of cancer, lowercase letters, such as ?a,? ?b? or "m" (multiple), are added to the ?T? stage category to provide more detail.

N: The letter "N" plus a number (0 to 3) describes whether cancer has been found in the lymph nodes, and, in some types of cancer, how many of these lymph nodes contain cancer. Lymph nodes are tiny, bean-shaped organs that help fight infection. Lymph nodes located closest to where the cancer began are called regional lymph nodes. Lymph nodes in other parts of the body are called distant lymph nodes. Most often, the more lymph nodes with cancer, the larger the number assigned. However, for some types of tumors, the location of the lymph nodes with cancer may determine the ?N? stage category.

M: The letter "M" indicates whether the cancer has metastasized (spread) to other parts of the body. If the cancer has not spread to other parts of the body it is said to be M0; if the cancer has spread to other parts of the body, it is considered M1.

Cancer stage grouping

Doctors determine the stage of a cancer by combining the T, N, and M classifications. Most cancers have four stages, stages I (one) to IV (four). Some cancers also have a stage 0 (zero).

Stage 0. This is used to describe cancer in situ, which literally means ?in place.? Stage 0 cancers are still located in the place they started and have not invaded nearby tissues. This stage of cancer is often highly curable, usually by removing the entire tumor with surgery.

Stage I. This is usually a small cancer or tumor that has not grown deeply into nearby tissues and has not spread to the lymph nodes or other parts of the body. It is often called early-stage cancer.

Stage II and III. These stages indicate cancers or tumors that are larger in size, have grown more deeply into nearby tissue, and have spread to lymph nodes, but not to other parts of the body.

Stage IV. This stage means that the cancer has spread to other organs or parts of the body. It may also be called advanced or metastatic cancer.

Prognostic factors

In addition to the TNM staging system, your doctor may use other information to help determine prognosis and decide on the best available treatment. This may include:

Grade. The grade describes how much cancer cells look like healthy cells when they are viewed

under a microscope. A tumor with cells that look more like healthy cells is called well differentiated or low-grade, while a tumor with cells that look less like healthy cells is described as poorly differentiated, undifferentiated, or high-grade. Because the grade of a cancer helps predict how quickly the cancer will spread, the prognosis is usually better for a tumor with cells that look more like healthy cells. There are different methods used to assign a cancer grade for different types of cancers. For example, prostate cancer [8] uses a grading system called the Gleason System that assigns a score to the tissue sample.

Tumor markers. [9] Tumor markers are substances found at higher than normal levels in the blood, urine, or body tissues of some people with cancer. Doctors and researchers have been discovering tumor markers for many types of cancer that can help determine the best treatment. In fact, for some cancers, certain tumor markers may be more helpful than stage in predicting the effectiveness of specific treatments or the chance that the cancer will spread. One example of a tumor marker is the estrogen receptor in breast cancer. Read more about tumor markers for breast cancer [10].

Tumor genetics. [11] There are many genes in cancer cells that may help predict if the cancer will spread or what treatment(s) will be effective. Recent research studies have found ways to determine the genes involved in many types of cancer. In the future, this information may also help doctors target treatment to each person?s cancer. Learn more about personalized medicine [12].

Other Staging Systems

The TNM system is mainly used to describe cancers that form solid tumors like breast, colon, and lung cancers. However, there are other staging systems used to classify other types of cancer, such as:

Central nervous system tumors (brain cancers). Because cancerous brain tumors do not normally spread outside the central nervous system (brain and spinal cord), only the "T" description of the TNM system applies. Currently, there is no single staging system for central nervous system tumors. Learn more about brain tumor staging and prognostic factors [13].

Childhood cancers. The AJCC does not include childhood cancers in its staging system. Most childhood cancers are staged separately according to other staging systems that are often specific to the type of cancer.

Cancers of the blood. Leukemia, lymphoma, and multiple myeloma are not described by the TNM system since they usually do not form solid tumors. Each cancer has a unique staging system; learn more about each cancer type [7].

Restaging

It is important to understand that the stage of a cancer does not change over time. If the cancer comes back or spreads to another part of the body, it is still referred to by the stage it was given when it was first diagnosed. The more recent information about the size and spread of the cancer is just added to it.

However, in some situations a cancer might be restaged to determine how well a treatment is working or to get more information about a cancer that has come back after treatment. This process usually involves redoing some of the same tests that were done when the cancer was first diagnosed and uses the same staging system described above. After this, the doctor may assign the cancer a new stage, which is then written with a lower-case ?r? before it to show that it is different from the stage given at diagnosis. This is not done very often, though.

More Information

Tests and Procedures [14]

Understanding a Pathology Report [15]

After a Biopsy: Making the Diagnosis [16]

Newly Diagnosed [17]

Links:
[1] http://www.cancer.net/navigating-cancer-care/diagnosing-cancer/stages-cancer
[2] http://www.cancer.net/about-us
[3] http://www.cancer.net/node/24720
[4] http://www.cancer.net/node/24723
[5] http://www.cancer.net/node/24728
[6] http://www.cancerstaging.org/
[7] http://www.cancer.net/cancer
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