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Medical Encyclopedia: CA-125

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Definition

CA-125 is a protein that is more prevalent in ovarian cancer cells than in other cells. This protein enters the blood stream and can be measured by a blood test. There are two CA-125 tests, a first and second generation test. The second generation test is now more widely used and is generally more accurate.

How the test is performed

Blood is drawn from a vein on the inside of the elbow or the back of the hand. The puncture site is cleaned with antiseptic, and an elastic band is placed around the upper arm to apply pressure and restrict blood flow through the vein. This causes veins below the band to fill with blood.

A needle is inserted into the vein, and the blood is collected in an air-tight vial or a syringe. During the procedure, the band is removed to restore circulation. Once the blood has been collected, the needle is removed, and the puncture site is covered to stop any bleeding.

How to prepare for the test

No preparation is necessary.

How the test will feel

When the needle is inserted to draw blood, some people feel moderate pain, while others feel only a prick or stinging sensation. Afterward, there may be some throbbing.

Why the test is performed

The test is most appropriately used to follow women who have already been diagnosed with ovarian cancer. In these cases, the CA-125 is a very good indicator of whether a patient is responding to treatment for her cancer, and whether a patient remains in remission after treatment. In general, the CA-125 is not a good test to screen healthy women for ovarian cancer.

Normal Values

The normal values for a CA-125 depend on the lab running the test. In general, levels above 35 U/ml are considered abnormal.

What abnormal results mean

In a woman with known ovarian cancer, a rise in CA-125 usually means a progression or recurrence of the disease. A decrease in CA-125 usually means the disease is responding to treatment.

In a woman who has NOT already been diagnosed with ovarian cancer, an elevated CA-125 can mean a number of things. While it can indicate that she has ovarian cancer, it can also indicate other types of cancer, as well as several benign diseases such as endometriosis.

To understand why the CA-125 is not a good general screening test, it is important to understand some basic facts about diagnostic tests. If the result of a diagnostic test is abnormal, the test result is usually considered to be "positive" (meaning the person seems to have the disease). If the result is normal, the test is considered "negative" (the person doesn't seem to have the disease). However, tests are somewhat imperfect, and the results might be incorrect.

Therefore, we are left with four possibilities every time a test is done:

- **True positive** -- means that the test result is abnormal and the patient does, in fact, have the disease.
- **False positive** -- means that even though the test result was abnormal, the patient in fact does NOT have the disease.
- **True negative** -- means the test is normal and the patient does not have the disease.
- **False negative** -- means that even though the test is normal, the patient does in fact have the disease, and that the test simply missed it.

The less "false positive" and "false negative" results any test gives, the more accurate it is. Some tests might be very accurate in certain groups of people, but not accurate in other groups.

This is the situation for the CA-125 test. In women with a known diagnosis of ovarian cancer, an elevation of the CA-125 is almost always an indicator of a cancer recurrence. In other words, a positive test usually means the disease is present. (The "false positive" rate is low.)

However, when used in a group of healthy women, an elevated CA-125 usually does NOT mean ovarian cancer is present. The vast majority of healthy women with an elevated CA-125 do not have ovarian cancer (or any other cancer for that matter). The "false positive" rate for this group of women is high.

In fact, only about 3 out of 100 healthy women with elevated CA-125 actually have ovarian cancer. Any woman with an abnormal CA-125 test will need further tests, and sometimes invasive surgical procedures, to confirm the result. These additional tests all involve risks and anxiety. On the rare occasion when cancer is found, it is usually not even at the earliest stage. Finally, about 20% of women with ovarian cancer never have an elevated CA-125 level. So a woman who does in fact have ovarian cancer can have a negative result -- a false negative.

Therefore, the CA-125 should not be considered an effective general screening test for ovarian cancer. Studies are underway to determine whether it might be effective when combined with other blood tests or radiologic studies.

What the risks are

- excessive bleeding
- fainting or feeling light-headed
- hematoma (blood accumulating under the skin)
- infection (a slight risk any time the skin is broken)
- multiple punctures to locate veins

A more likely risk is that a "false positive" test will lead to anxiety and more involved, ultimately unnecessary, testing.

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