



Medicine for Managers

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CA 125

The name CA 125 has come to be well-known as a medical test and is known to be associated with the diagnosis of ovarian cancer. Yet for most people it is not clear how it is used, what is actually being measured and how effective it is at aiding or confirming diagnosis. For a lot of patients, the very mention of the term causes anxiety.

In summary, the CA 125 (cancer antigen 125) test measures the amount of a glycoprotein (a protein linked to sugar) found in the blood. It is used to monitor certain cancers during and after treatment and is referred to as a “tumour marker”.

It is most useful as a means of following the course of a disease after diagnosis and is the most commonly used test for monitoring ovarian cancer.

The test may be raised in someone who does not have ovarian cancer and normal in someone who does have ovarian cancer.

However, the test is not accurate enough to be used as a routine screening test for ovarian cancer because there are a number of non-cancerous conditions associated with a raised CA 125 level.

These may include normal physiological changes such as menstruation and the presence of non-cancerous conditions such as fibroids.

The test is not specific for ovarian cancer and may be elevated in other gynaecological

cancers, such as those of the endometrium (uterine lining) and the Fallopian tubes, and also tumours of the peritoneum (the lining of the abdominal cavity).

The test is useful but is not specific and the protein is only raised in about 50% of women with early stage ovarian cancer and about 85% of women with advanced ovarian cancer.

Furthermore, the level of the marker when raised is no guide to the extent of the disease identified.

CA 125 was originally discovered in 1981 by Robert Bast, Robert Knapp and their team, using a monoclonal antibody derived from mice and called OC 125. It was so called because it was the 125th antibody employed in the research. It was recognised that blood levels seemed to correlate with the presence of ovarian cancer if present above a particular concentration.

They found that the risk of disease increased with increasing levels of the glycoprotein.

Apart from the ovary, low levels of CA125 are found in a number of other tissues including the breast, pancreas, liver, and the lining of the abdomen.

If there is present any inflammatory change the outcome may be an increase in the number of cells producing CA 125.

Therefore, the CA 125 level may be raised, not only in ovarian and other cancers but also in a host of other inflammatory conditions such as pancreatitis, inflammatory bowel diseases, including diverticulitis, and some lung disorders, liver disease, heart disorders including congestive cardiac failure and following recent surgery.

It may also be raised in benign gynaecological disorders such as fibroids, some ovarian cysts and endometriosis.

The lack of certainty of diagnosis with the test and the variety of other reasons why CA 125 may provide a result unrelated to a sinister cause, means that it is not appropriate for use as a routine.

However, under some circumstances it is valuable:

It is a test which may be used in assessing women for whom the development of ovarian or other tumours is a **high risk**, and also in circumstances where ultrasound or scan results suggest abnormal findings.

It may be used to **detect** recurrent ovarian cancers in women who have already been treated for the disease and is also valuable in **monitoring** the course and success of chemotherapy to assess the effectiveness of the treatment.

In all these uses, the test is most valuable to detect trends.

The test is repeated on a regular basis and the assessment of serial results showing the CA 125 steadily rising or falling (or remaining unchanged) is an indicator of the effectiveness of current or previous treatment.

Finally, it is vital to emphasise that, in any woman for whom screening is appropriate or important, or where disease may be suspected or identified, the test provides just one component of investigation, diagnosis and monitoring, along with biochemical, radiological, ultrasound and magnetic resonance techniques, to minimise the risk of unreliability in accurate reflection of disease status.

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