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Raised CA125 – what we actually know

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Ovarian cancer is the leading cause of death from any gynaecological malignancy. Its insidious nature means that over 70% of women diagnosed will present with late stage disease (stage III or IV). For this reason, screening for ovarian cancer has the potential to considerably affect mortality by detecting it at an earlier stage. For many years, analysis of carbohydrate antigen 125 (CA125) levels has been the 'go-to' investigation for ovarian cancer screening, despite no true evidence of its efficacy.

CA125 is also known as mucin 16 (MUC16) because it is encoded by the MUC16 gene, located on chromosome 19 . A normal level of CA125 is considered to be <35 IU/ml. Ca 125 is elevated in about 80% of women with advanced cancer and about 50% of women with an early stage ovarian cancer . We can use this tumour marker to evaluate respond to treatment in patients with known ovarian cancer. Only 3% of premenopausal women with raised Ca 125 have ovarian cancer.

CA125 levels can increase in both physiological and pathological conditions. CA125 is expressed in tissues derived from embryonic coelomic epithelia. These include the endometrium, mullerian epithelium, peritoneum, pleura and pericardium.

The primary function of ca125 is to provide hydration and lubrication, help the formation of a dis-adhesive barrier, regulate mucosal defence of the epithelial cell layer and protects them from foreign body attacks.

Within these epithelia, CA125 is synthesised by mesothelial cells in response to assorted stimuli, most notably mechanical stress and inflammation. Infection, menstruation , fibroid, endometriosis , benign ovarian cysts , also non-gynaecologist problem such as lung disease , liver disease heart failure, all can raise CA125 due to mechanical and inflammatory stress.

It has been postulated that CA125 plays a role in cell-mediated immunity by suppressing the response to natural killer cells and promoting attachment to mesothelial cells by binding to mesothelin.

A lot of care providers use ca125 off label as part of a work up to assess the risk of cancer in in a woman with a pelvic mass for example we know it's not a perfect screen test but it's one piece of data that we can use along with a lot of other information to assess a patient risk for having a cancer CA 125 cannot definitively diagnosis ovarian cancer for that we need surgery or a tissue biopsy when a pathologist look at it under the microscope that is really tell us if the cancer is there or not. What's the 125 can do along with ultrasound or other kinds of imaging, gives a higher or lower level of suspicion that a tumour or abnormal growth is present on the ovary.

Recent Publication

1. Stout A, Hamer J, Sharples T, et al. (March 18, 2022) Less Is More: A Narrative Review of Deciding When Surgical Intervention Should Be Withheld. Cureus 14(3): e23285.
2. Hamer J, Alazizi M, Tahmasebi F (February 01, 2022) An Unusual Case of Chronic Lymphocytic Leukaemia Involving the Cervix. Cureus 14(2): e21823.
3. Hamer J, Jones E, Chan A, et al. (May 31, 2021) Can We Routinely Employ the Use of Low-Pressure Gynaecological Laparoscopy? A Systematic Review. Cureus 13(5): e15348.

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