Estimating on the prevalence of ovarian tumors in recent years

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تقدير معدل انتشار أورام المبيض في السنوات الأخيرة

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المستخلص:

نظرة عامة على الدراسة: هدفت الدراسة إلى تقييم الأداء التشخيصي لمستضد السرطان 125 (CA125) في المصل للكشف عن سرطان المبيض. وقد شملت الدراسة 46 امرأة تتراوح أعمارهن بين 22 و80 عامًا، وتم علاجهن في الفترة من 1 يونيو إلى 6 يونيو 2024. وأجري البحث في عيادة المنير ومختبر الحياة في منطقة قصر بن غشير.

المنهجية: تم جمع عينات المصل في أنابيب ذات غطاء أحمر سعة 2 مل (بدون مضاد للتخثر) وتم طردها بالطرد المركزي.

التحليل: تم قياس مستويات CA125 باستخدام جهاز COPAS411. وتم التعبير عن النتائج بوحدة U/ml.

التحليل الإحصائي: تم تحليل البيانات باستخدام اختبار T والإحصاء الوصفي باستخدام برنامج SPSS 16.0. يُظهر تحليل مستويات C125 عبر الفئات العمرية المختلفة أن معظم الفئات العمرية (22–71 عامًا) لديها مستويات متوسطة ضمن النطاق الطبيعي (10.93 إلى 17.16 وحدة/مل). ومع ذلك، فإن المجموعة العمرية 72–81 عامًا لديها متوسط أعلى بكثير يبلغ 24.52 وحدة / مل، مما يشير إلى زيادة محتملة في خطر الإصابة بالعدوى أو الحالات الطبية الأخرى. تظهر الحالات الفردية داخل كل مجموعة قيمًا قريبة من المتوسط، مع اقتراب بعضها من الحد الأعلى، مما يشير إلى احتمال ارتفاع خطر الإصابة لدى بعض الأفراد CA125 هو مؤشر حيوي واعد للكشف عن سرطان المبيض ومراقبة الحالات المختلفة، على الرغم من أن مستوياته يمكن أن ترتفع في الأورام الخبيثة وغير الخبيثة. تؤكد دراستنا فائدته في الرعاية الأولية للكشف عن سرطان المبيض، لكنها تسلط الضوء على الحاجة إلى النظر في أنواع أخرى من السرطان لدى النساء ذوات مستويات CA125 العالية. نوصي بالفحص المنتظم والحملات التعليمية والمزيد من البحث لتعزيز تطبيقه السريري.

الكلمات المفتاحية: *مستضد السرطان (125)، سرطان المبيض، مصل الدم.*

Abstract:

Study Overview: The study aimed to evaluate the diagnostic performance of the serum biomarker Cancer Antigen 125 (CA125) for detecting ovarian cancer. It involved 46 women, aged 22-80 years, who were treated between June 1 and June 6, 2024. The research was conducted at ALMUNIR CLINIC and ALHYAT LAB in the Qasr Bin Ghashir area.

Methodology:

Sample Collection: Serum samples were collected in 2 ml red-capped tubes (without anticoagulant) and centrifuged.

Analysis: CA125 levels were measured using the COPAS411 device. Results were expressed in U/ml.

Statistical Analysis: Data were analyzed using T-test and descriptive statistics with SPSS 16.0.The analysis of C125 levels across different age groups shows that most age groups (22-71 years) have average levels within a normal range (10.93 to 17.16 U/ml). However, the **72-81 years** group has a significantly higher average of 24.52 U/ml, indicating a potential increase in the risk of infection or other medical conditions. Individual cases within each group show values close to the average, with some nearing the higher end, suggesting a possible higher risk for certain individuals.CA125 is a promising biomarker for detecting ovarian cancer and monitoring various conditions, though its levels can be elevated in both malignant and non-malignant tumors. Our study confirms its utility in primary care for ovarian cancer detection, but highlights the need to consider other cancers in women with high CA125 levels. We recommend regular screening, educational campaigns, and further research to enhance its clinical application.

Keyword: *Cancer Antigen (125), Ovarian Cancer, Serum*

Introduction:

Ovarian Tumor are the 7th most common Tumor in women. It is found more commonly in elderly age group.The majority of women are diagnosed at an advanced stage of disease due to the relative absence of symptoms and signs during early stages of the disease.Tumor biomarkers have played an essential role in the detection and management of ovarian cancer.Tests and procedures used to diagnose ovarian cancer include: Pelvic exam. During a pelvic exam, doctor inserts gloved fingers into your vagina and simultaneously presses a hand on abdomen in order to feel (palpate) pelvic organs. Blood tests may include organ function tests that can help determine overall health.Numerous ovarian cancer biomarkers have been the subject of extensive and intensive studies.Among these biomarkers, Cancer Antigen 125.This antigen is then shed and quantified in serum samples of ovarian cancer patients (Nustad et al., 1996).Less than 20% of advanced-stage ovarian cancer patients survive beyond ten years (Cress et al., 2015). Surgery and chemotherapy have been used as the main ovarian cancer treatments for many decades. Primary debulking surgery is the preferred initial treatment option for patients with advanced-stage ovarian cancer (Chi et al., 2015). Cancer is a less common cause of death but the incidence of cancer in developed as well as developing countries is increasing and, by 2025, according to the world cancer report, it is estimated that >50% of global cancers will be diagnosed in low- and middle-income countries (WHO, 2010).

Objectives:

- The main goal Is to raise awareness about the disease.
- Early detection and prevention of disease.
- Identify the causes that lead to ovarian cancer in older women.

Material and methods:

The overarching aim of this study was to evaluate the diagnostic performance of the serum biomarker Cancer Antigen 125 (CA125) for the detection of ovarian cancer when used in primary care . CA125 is first and foremost an ovarian cancer test and we have

primarily focused on its role in ovarian cancer detection in this study.

Study participants:

The number of participants in this study was 46 women of different ages (22-80 years) who visited the laboratories that were treated during the period between 1- 6 June 2024.

Place of study:

This study was conducted in the Almunir clinic and Alhyat lab**.** in Qasr Bin Ghashir area.

Measurement of serum CA 125:

To measure CA 125 in serum, patients' serum was used as biological samples, collected in 2ml red-capped tubes, without anticoagulant, centrifuged,The samples were analyzed by COPAS411 device. The results are expressed in U/ml.

Statistical analysis:

Results were expressed as Mean±SEM. All data were analyzed using**T**test and descriptive test using the statistical program SPSS 16.0 (SPSS, 2008).

Results and discussion:

Results: This study used 46 women of different ages ranging from (20-22 years) as they were cases who visited Al-Munir and Al-Hayat laboratories in the Qasr Bin Ghashir area during the period from 1- 6 June 2024, where blood was drawn and a C125 tumor diagnosis analysis was performed.The following tables show the arithmetic mean and standard error of the analysis results and compare them to the upper normal limit, as Table (1,2) shows the number, age group, and analysis results compared to the normal rate and *p.value*, as the age group was (22-31 years) and their number was8 cases and their average was17.16±3.06U/Ml.The age group (32-41 years) 14 cases, had an average of 10.93±2.5306U/Ml.The age group (42-51 years), 9 cases, had an average of 16.11±3.64 U/Ml. The age group (52-61 years), 7 cases, had an average of 11.54±3.27 U/Ml. The age group (62-71 years), 3 cases, had an average of 12.66±3.17 U/Ml. The age group (72 -81years), 5 cases, had an average of 24.52±12.39U/Ml.From the table we notice that the results of the analysis are within the normal range during the age periods (22-71 years) but during the age group (72-81 years) the rate rose to reach 24.52 U/Ml. As for individual cases, cases were recorded close to the average to the highest for the beginning of the possibility of infection C125, as shown in Table (3) which shows the results compared to the natural average.

Discussion: Ovarian tumors include benign and malignant tumors, mainly affecting women of reproductive age. In general, malignant tumors correspond to tumors that originate from the surface epithelium (cavitary cavity), which in most cases determine symptoms or signs in the advanced stages of the disease. Ovarian cancers represent about 30% of malignant tumors of the female reproductive system. About 70% of women with ovarian cancer show extrapelvic extension of the tumor. Malignant ovarian tumors that originate from the surface epithelium and/or stroma are classified as well-differentiated (grade 1), intermediately differentiated (grade 2), and poorly differentiated (grade 1); this classification is related to prognostic factors and therapeutic modalities (Tavassoli et al., 2004).The tumor marker CA 125 is a glycoprotein synthesized by the surface cells of the ovary. Serum measurement can be used to assess disease progression or even in the early diagnosis of ovarian tumors. In general, serum CA 125 concentrations are elevated in malignant ovarian tumors, especially in large lesions and/or advanced stages of disease.

The use of photochemical method for the assessment of serum CA 125 levels provides a sensitivity of 27%, a specificity of 97%, intra- and inter-assay coefficients of variation of 10%. (Kang et al., 2010). Among the results obtained and shown in the tables, some cases showed an increase in the C125 rate, and this increase may be an indicator of the possibility of ovarian tumors. This increase may be due to the change in physiological factors in the case of menopause profoundly on CA125 levels, as CA125 levels are significantly higher in healthy premenopausal women (Skates et al., 2011). In patients with ovarian cancer, CA125 levels correlate positively with tumor burden and FIGO stage (Zanaboni et al., 1987). CA125 levels are also elevated in many benign conditions, leading to many false positive results in ovarian cancer screening. In general, CA125 is not expressed in about 20% of ovarian cancers, and therefore the expected sensitivity of the test is about 80% Rosen et al., 2005). Our study results are consistent with those of (Moss et al. 2005) who reported that 80% of cases with elevated CA125 levels did not have ovarian cancer. Thus, the high false-positive rate and poor sensitivity of CA125 testing contribute to unnecessary surgical procedures and psychological consequences for these women**.** CA-125 is the most widely used marker for ovarian cancer screening. Approximately 90% of women with advanced ovarian cancer have elevated levels of CA-125 in their blood, making CA-125 a useful tool for ovarian cancer screening. (Gupta et al., 2010) CA-125 may be elevated in the blood of some patients with certain types of malignancies4 or other benign conditions, such as acute leukemia. Benign tumors affect women aged 20 to 45 years, while malignant lesions predominate in patients older than 45 years (Alonso, 2005).

Conclusion:

1- CA125 is a biomarker with potential utility in all areas: early detection, diagnosis, prognosis, monitoring and therapy.

2- From previous studies, increased serum CA-125 levels occur in a variety of malignant and non-malignant physiological conditions.

3- In our current study, the results showed that CA125 is a useful test for the detection of ovarian cancer.

Recommendation:

We recommend the following:

1- Conducting periodic examinations for women.

2- Holding educational lectures to raise awareness among women.

3- We recommend conducting many studies on this issue due to its seriousness.

Table (1) Mean and standard error C125 for all participants.

AGE	NO	RESULTS	NORMAL RANGE	P.*Value*
22-31	08	17.16±3.06	**1.0-35** U/mL	0.001
32-41	14	10.93±2.53		0.001
42-51	09	16.11±3.64		0.001
52-61	07	11.54±3.27		0.001
62-71	03	12.66±3.17		0.020
72-81	05	24.52±12.39		0.445

Table (2) shows the cases that recorded an increase in C125.

AGE	NO	RESULTS	NORMAL RANGE
22	1	25	1.0-35 U/mL
29	1	30	
32	1	29	
41	1	33	
46	1	26	
50	1	34	
51	1	25	
58	1	29	
76	1	73.6	

Table (3) shows the average for cases that recorded an increase in C125.

AGE	NO	RESULTS	NORMAL RANGE	P.*Value*
22-76	9	45±5.47 U/mL	1.0-35 U/mL	0.105

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