WORLD JOURNAL OF PHARMACEUTICAL RESEARCH
SJIF Impact Factor 5.990
Volume 4, Issue 8, 2872-2878. Research Article ISSN 2277– 7105

# EVALUATION OF CA125 AS MARKER IN PATIENTS WITH LUNG CARCINOMA

**Dr. Kaswer Musa J. Al-Tariahi[1], Dr. Wasan Sami Hameed[2], Dhefaf Hameed Abdul Saheb AL-Mudhefar[3]**

[1]Dept.of Pathology; Faculty of Medicine, Kufa Uni.
[2]Dept.of Microbiology; Faculty of Medicine, Kufa Uni.
[3]Dept.of Biology; Faculty of Sciences, Kufa Uni.

Article Received on
17 June 2015,

Revised on 08 July 2015,
Accepted on 29 July 2015

***Correspondence for Author**
**Dr. Dhefaf Hameed Abdul Saheb AL-Mudhefar**
Dept.of Biology; Faculty of Sciences, Kufa Uni.

## ABSTRACT

In current study fifty two patients suffering from lung cancer disease were admitted to the Oncology Unit of Al-Sadder Medical City /Al-Najaf Al-Ashraf during the period from January till August 2014. All lung cancer patients were diagnosed by specialist physician. Patients with lung carcinoma (n=52) were divided in two categories male (n=29) and female (n=23) and both male and female groups were subdivided into four categories according to types of lung cancer and stage of disease. By types, they were subdivided into four groups: squamous cell carcinoma, adenocarcinoma, large cell carcinoma and small cell carcinoma. By stage male and female groups they were subdivided into four groups stageI, stageII, stageIII and stage IV, the result has shown significant increase ($p<0.05$) in CA125 serum concentration in patients with lung cancer between types of disease and present highly elevated in adenocarcinoma can be determined as diagnostic factor of lung cancer.

**KEYWORDS:** squamous cell carcinoma, adenocarcinoma, large cell carcinoma and small cell carcinoma.

## INTRODUCTION

Lung cancer (pulmonary carcinoma) is a malignant lung tumor described by the abnormal proliferation of cells that occurs in lungs: these cells divide quickly leading to create tumors. Tumors become more numerous and larger, they interfere with the ability of lung to give the air exchange of oxygen. It started as a pre-cancerous lung changes, the development of this

disease takes many years that no symptoms appearance and no clear changes in X-ray, it is considered the most common men cancer and less than frequent cancer of women.[1,2,3]

Cancer antigen 125 (carbohydrate antigen 125), is a high molecular weight, when compared with other membrane-bounded mucins which have motifs of unique structure, it is one of the mucins family glycoproteins known as mucin 16 that identification by detection of the immunological of the ovarian carcinoma epithelium also named OC125. MUC16 have three domains (tandem repeat,N-terminal,C-terminal) first and second domains together are highly O-glycosylated and extracellular, the extracellular SEA modules, a transmembrane domain, and a cytoplasmic tail that composed of sites of phosphorylation and 31 amino acids, all are components of the C-terminal domain and the extracellular SEA modules contains enterokinase, also region of extracellular can be cleaved by proteolytic just at site of the SEA modules.[4,5]

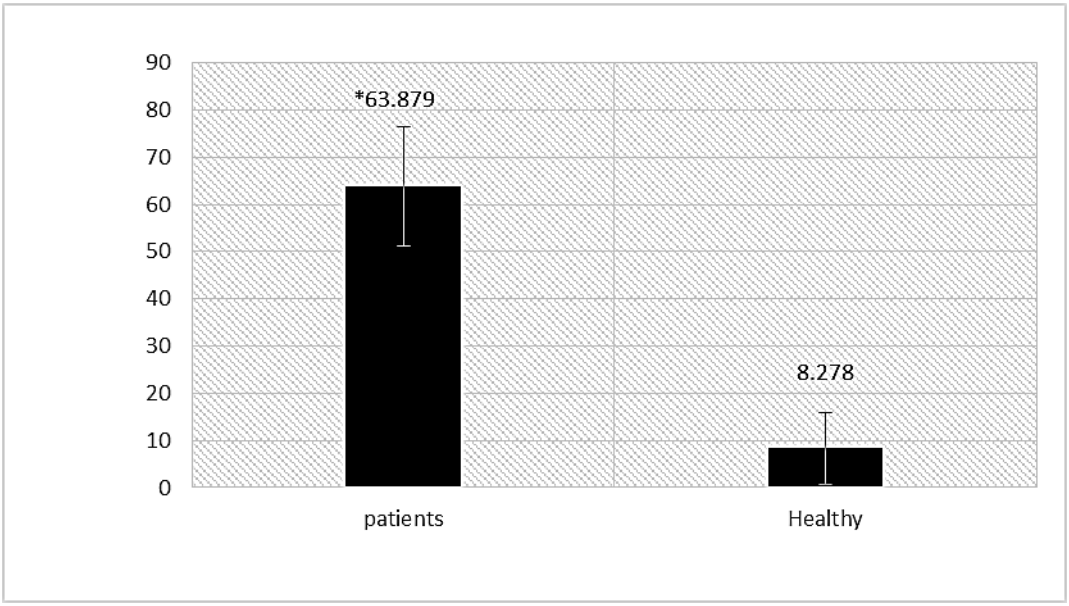
## MATERIALS AND METHODS

Carbohydrate antigen 125 (CA125) Estimation.

This assay is executed with specific kit for test, supplied by (US Biological, life Sciences.).

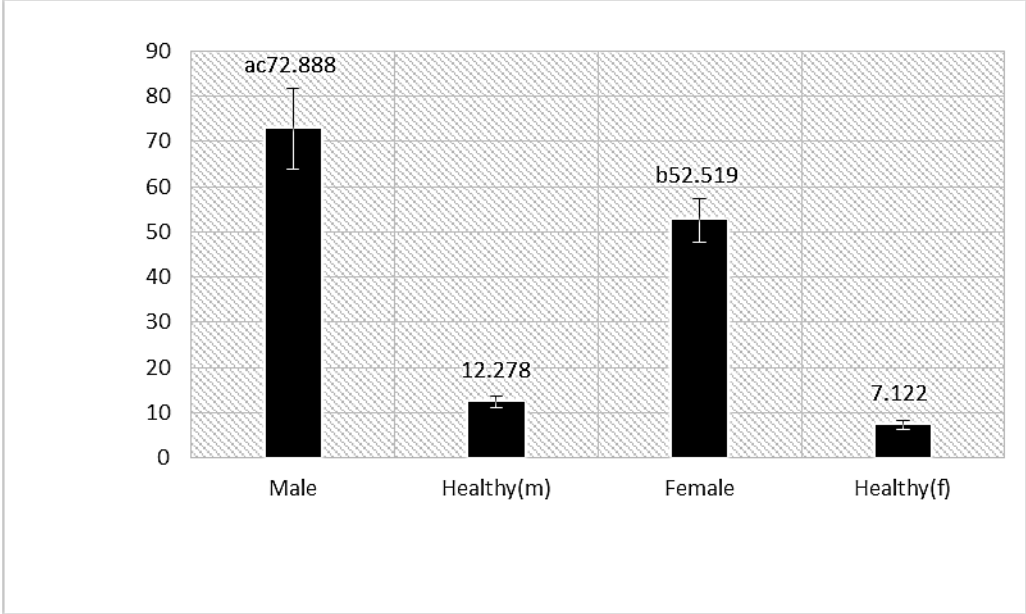
## RESULT

The result in figure (1) showed significant increase ($p<0.05$) of serum CA125 concentration in lung cancer patients group (63.879±12.614 IU/ml) as compared with healthy group (8.278±7.602 IU/ml).Whereas the result in figure (2) also showed significant increase ($p<0.05$) of serum CA125 concentration in lung cancer patients male group (72.888± 9.012 IU/ml) compared with healthy male group (12.278±1.232 IU/ml)and significant increase ($p<0.05$) female group (52.519± 4.858 IU/ml) as compared with healthy female group (7.122±0.982 IU/ml).




*Statistically significant differences (P < 0.05) between patients, healthy group.

**Figure (1): Serum level of CA125 in lung cancer patient's comparison with healthy group.**

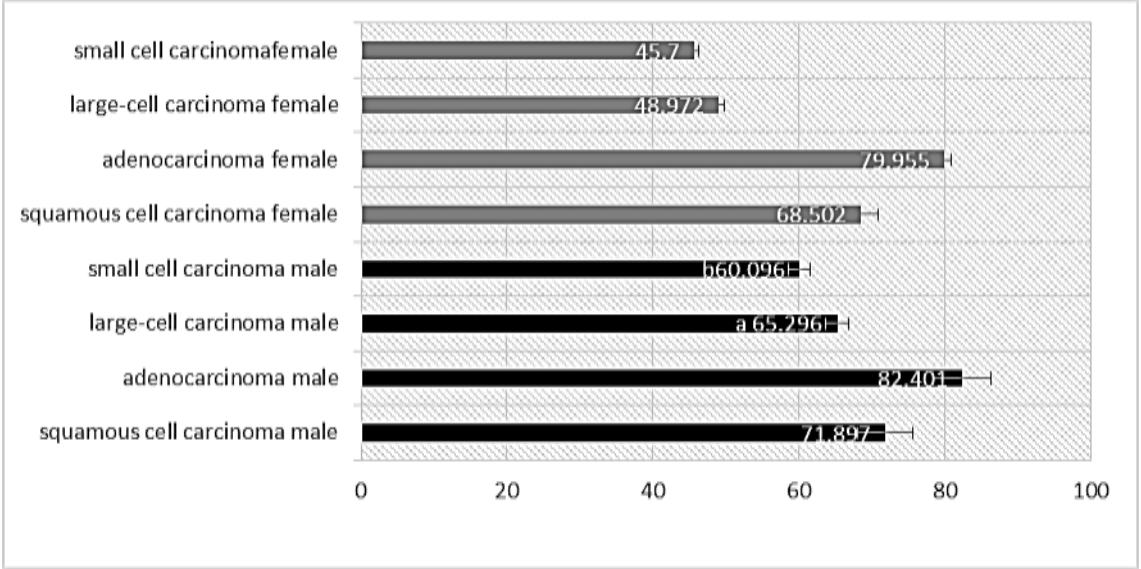



(a) Statistically significant differences (P < 0.05) between male, healthy group. (b) Statistically significant differences (P < 0.05) between female, healthy group. (ac) Statistically significant differences (P < 0.05) between male, female group.

**Figure (2): Serum level of CA125 in lung cancer patient's male group and female group comparison with healthy group.**

The result of CA125 value that figure (3) showed significant increase (p<0.05) of female serumCA125 concentration squamous cell carcinoma, adenocarcinoma, large-cell carcinoma

and small cell carcinoma(68.502 ±2.464 ,79.955±1.009,48.972±0.895,45.7±0.682 ) IU/ml , also significant increase ($p<0.05$) of male serumCA125 concentration in squamous cell carcinoma , adenocarcinoma , large-cell carcinoma and small cell carcinoma (71.897±3.799, 2.401±3.941,65.296±1.522,60.096±1.407) IU/ml. Significant increase ($p<0.05$) in CA125serum concentration between type of lung cancer in male and female.

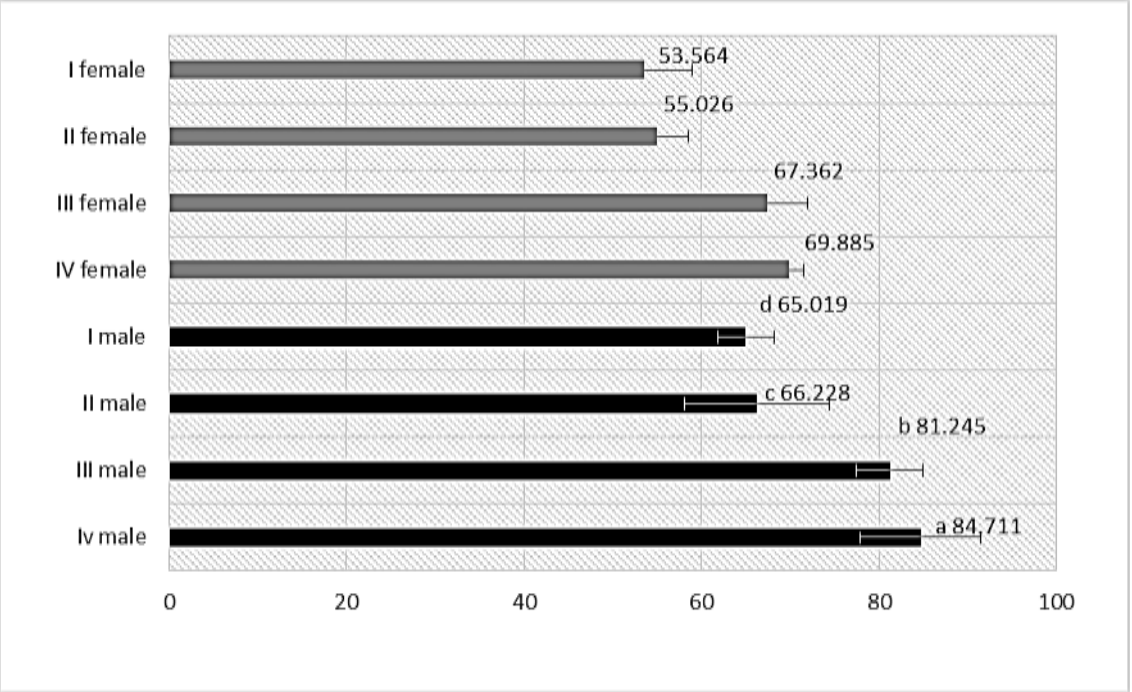



(a) Statistically significant differences ($P < 0.05$) between large-cell carcinoma male and large-cell carcinoma female.

(b) Statistically significant differences ($P < 0.05$) between small cell carcinoma male and small cell carcinoma female.

**Figure (3): Serum level of CA125 in lung cancer patient's male group and female group comparison with type of lung cancer.**

Figure(4) explained the result of CA125 value in serum of female group have significant increase ($p<0.05$) with stage I, stage II, stage III and stage Iv of disease (53.564±5.417, 55.026±3.488, 67.362±4.646, 69.885±1.632 ) IU/ml, the result of male serum concentration shown significant increase ($p<0.05$) with stage I, stage II, stage III and stage Iv of disease (65.019±3.183, 66.228± , 81.245±3.78,84.711±6.804) IU/ml, as well significantly between stage of disease in female and stage of disease in male.




(a) Statistically significant differences (P < 0.05) between I male and I female.

(b) Statistically significant differences (P < 0.05) between II male and II female.

(c) Statistically significant differences (P < 0.05) between III male and III female.

(d) Statistically significant differences (P < 0.05) between IV male and IV female.

**Figure (4): Serum level of CA125 in lung cancer patients (male and female) and stage of disease.**

## DISCUSSION

The results of the current study agree with [6,7] who noted that CA 125 serum concentration was higher in patients with lung cancer . They also suggested that in lung carcinoma patients CA 125 can be used as a supplemental test. The tumor markers play role in the lung cancer diagnosis and prognosis such as CA 125. Other studies refer to not surprising that cell line of human lung cancer produces CA125, elevated in serum concentration of CA125 not only in ovarian cancer but also reported in patients with lung cancer.[8]

The results presented in the current study figure (3) have shown serum concentration of CA125 in patients (male, female) significant difference increase ($p<0.05$) among types of lung cancer disease but CA125 concentration is highly elevated in squamous cell carcinoma. This results are agrees with[9] who suggest that CA125 serum concentration is observed in with squamous cell carcinoma patients. The current study also shows CA125 serum concentration increased in patients with adenocarcinoma carcinoma. The result agrees with[10]

who said that CA125 serum level increased in adenocarcinoma carcinoma patients than in squamous cell carcinoma. It also agrees with [8] who said that on the cell surface of lung adenocarcinoma CA125 was expressed but not expressed in squamous cell carcinoma.

The current results in figure (4) shown significant difference increase ($p<0.05$) between CA125 serum concentration and stage of lung cancer disease. This result shows CA125 levels which are lower in early stage than in late stage of disease agreed with[11,12] who suggested that patients with early stage disease CA 125 concentrations were to be lower than in patients with unresectable or metastatic disease.

## CONCLUSIONS

CA125 is considered lung cancer prognostic factor.

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