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Evaluation Of liver And Kidney Functions In Lung And Bladder Cancer Patients

R.A. Mahmood
Department Optical ,College of Medical and Health Technology,
Foundation of Technical Technology .
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Abstract

This study was performed at Nuclear Radiation Hospital in Baghdad for the period from January 2011 to May 2011. 44 Blood samples were collected from patients suffered lung and bladder cancer and 24 samples as healthy control individuals.

Routine liver functions tests were studied by measuring S.GPT, S.GOT and Kidney function was evaluated by estimation of blood urea and creatinine in serum samples of individuals studied.

It was observed that the incidence of lung and bladder cancer was higher in males than females patients (male 81.82 %, 72.73%, female18 .18%, 27.27% respectively).

Insignificant difference was noted among age of lung and bladder cancer patients compared with control group. The results of biochemical analysis of lung and bladder cancer showed an increase in the mean of values of GPT, GOT, blood urea and serum creatinine among patients when compared with the healthy individuals.

Key wards: Cancer, Lung Cancer,Bladder cancer,Blood Urea,S.Cratinine.

Introduction

Cancer is a complex disease. , the survival of patients with cancer depends on the localization of the tumor, histology/ pathology, tumor stage, host–tumor interaction and subjective assessment of the other diseases, illnesses or conditions [1].The disease is the leading cause of death in economically developed countries and the second leading cause of death in developing countries. The burden of cancer is increasing in economically developing countries as a result of population aging and growth as well as, increasingly, an adoption of cancer-associated lifestyle choices including smoking [1]

Lung cancer is the leading cause of cancer-related mortality worldwide. The possibility that a patient with lung cancer will be alive after five years from the diagnosis is approximately 15% [2]. The World Health Organization(WHO) classification defines seven histology types of primary malignant epithelial tumors of the lung and more than 20 different variants [3].The most common lung cancer histology type is adenocarcinoma, followed by squamous-cell carcinoma and small cell lung cancer (SCLC). Diagnosis of lung cancer and staging is mainly based on the following procedures; imaging techniques (chest X-ray, CT scan and PET scan, nowadays usually in combination with CT to merge metabolic and anatomical information), minimally invasive approaches (bronchoscopy, endobronchial ultrasound, fine-needle and middle-needle aspiration biopsies [4]. The small cell type of lung cancer has a propensity for early and wide dissemination and is best treated by chemotherapy and radiation. Several studies indicated that smoking and alcohol consumption behaviors are related to the survival of lung cancer patients[4].

Other studies pointed out that health behaviors affect lung cancer patients' survival.Early current treatment of lung cancer varies according to the histologic type and anatomic extent, or stage, of the tumor.

An organ such as the bladder consists of complex, interacting set of tissues and cells. Inflammation has been implicated in every major disease of the bladder, including cancer, interstitial cystitis, and infection [5] Bladder cancer is a common urologic cancer. Almost all bladder cancers originate in the urothelium, which is a 3-7-cell mucosal layer within the muscular bladder.

In North America, South America, Europe, and Asia, the most common type of urothelial tumor diagnosed is transitional cell carcinoma (TCC); TCC constitutes more than 90% of bladder cancers in those regions. TCC can arise anywhere in the urinary tract, including the renal pelvis, ureter, bladder, and urethra, but it is usually found in the urinary bladder. Carcinoma *in situ* (CIS) is frequently found in association with high-grade or extensive TCC. [6] The classic presentation of bladder cancer is painless gross hematuria, which is seen in approximately 80-90% of patients. Physical examination results are often unremarkable (see Clinical Presentation). Cystoscopy, cytology, and biopsy when necessary are the principal diagnostic tests [7].

Aim of the study

This study is aimed to

1-study the incidence of lung and bladder cancer among male and females patients .

2-determine the values of GPT, GOT, blood urea and serum creatinine among patients with lung and bladder cancer healthy individuals compared with control group.

Materials and methods

This study was performed at Nuclear Radiation Hospital in Baghdad, for the period from January 2011 to May 2011; 44 blood samples were collected from patients suffered from lung and kedny cancer and 24 blood samples collected from healthy as control group in test tubes, medical history of each individual was obtained by questionnaire included (age, sex, area of residence and a history of diseases).

Routine liver functions test studied by measurings were S.GPT, S.GOT, according to procedure.]8[

, urea by modified urease-]9[Kidney function was evaluated by estimation of creatinine .]11[and using ANOVA test]10[Berthgot method

Results

Table (1) shows the distribution of lung and bladder cancer among males and females individuals.It is clear that the incidence of lung and bladder cancer is higher in male than females patients (male 81.82 %, 72.73), (female18 .18%, 27.27%) respectively.

Table (2) shows insignificant difference among the mean of age of lung and bladder .The results of blood biochemical]11[cancer patients and control group. using ANOVA test analysis of lung and bladder cancer showed elevation in the mean of values of AST, ALT, blood urea and serum creatinine in patients in comparison with the at $P < 0.05$ using ANOVA .]11[test

Discussion

The present study shows that there was no significant differences in age of lung and bladder cancer patients and control group.These result is not in agreement with Anand *et al.*[who mentioned that lung cancer is a disease of the elderly, with more than 40% of cases]12 diagnosed in subjects aged >70 years.

found that about 9 out of 10 people with bladder cancer are over the age [13] Wala & Amal of 55 which did not agree with the current study .

Our study showed that lung and Bladder cancer was more frequent in male than in female and this may be due to sex –related hormones which]13[individuals. The result agree with .[14]play a role in the development of cancer by promoting cell proliferation

Elevation in values of GPT, GOT, total serum bilirubin,PT,PTT were noticed among lung and bladder cancer patients .Alanine aminotransferase (ALT) is an enzyme present in hepatocytes ,when a cell is damaged, it leaks this enzyme into the blood, where it is measured.

Alanine transaminase (ALT) rises dramatically in acute liver damage, such as viral [15]hepatitis or paracetamol (acetaminophen) overdose

Aspartate aminotransferase (AST) is similar to ALT which is another enzyme associated with liver parenchymal cells. The ratio of AST to ALT is sometimes useful in]15[differentiating between causes of liver damage.

Blood urea also elevated in serum of patients with lung and bladder cancer ,this may occur as a result of impairment of renal function because of its sensitivity in detecting early .Level of creatinine also increased in serum of patients studied. Measuring]13[renal failure serum creatinine is a simple test and it is the most commonly used indicator of renal function. A rise in blood creatinine level is observed only with marked damage to functioning nephrons.

Therefore, this test is not suitable for detecting early-stage kidney disease. A better .]16, 17[estimation of kidney function is given by the creatinine clearance (CrCl) test

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Table (1): Distribution of patients with lung and bladder cancer by gende

Bladder cancer Female (N)	(6)	Lung Cancer Female (N)	4
Male	(16)	Male (N)	18
Female (%)	27.27	Female (%)	18.18
Male (%)	72.73	Male (%)	81.82

Table (2): Age and biochemical analysis of patients with lung and bladder compared with control group.

	Age	GOT (N.V.up to 20 U/L)	GPT (N.V.up to 20U/L)	B.Urea (N.V=2.5-7.5 m.mol/L)	S.Creatinine (N.V.=62-124 m.mol/L)
Control	55.00 ± 4.17	6.33 ± 0.23 a	5.13 ± 0.19 a	3.80 ± 0.14 a	73.25 ± 1.06 a
Lung Cancer	60.82 ± 2.80	16.23 ± 2.16 b	13.95 ± 2.34 b	6.28 ± 0.38 b	92.28 ± 5.30 b
Bladder Cancer	61.55 ± 1.59	13.95 ± 1.87 b	13.73 ± 1.68 b	8.07 ± 1.71b	111.89 ± 7.79 c
F-calculated	1.157	11.709#	10.858#	5.326#	14.844#

Values are mean ± S.E.
Significant at $P < 0.05$ using ANOVA test
a, b, c insignificant difference between similar letter using Duncan Multiple Range test for comparative of means.

تقييم وظائف الكبد والكلية في المرضى المصابين بسرطان الرئة والمثانة ...

رفاه علي محمود
قسم التقنيات البصرية، كلية التقنيات الصحية والطبية، بغداد ، هيئةالتعليم التقني
استلم البحث في: 5 أذار 2012 قبل البحث في: 16 تموز 2012

الخلاصة:

أجريت الدراسة الحالية في مستشفى الاشعاع الذري في محافظة بغداد للفترة مابين كانون الثاني2011 ولغاية أيار 2011 حيث جمعت 44 عينة دم من مرضى كانوا يعانون من سرطان الرئة والمثانة إضافة إلى 24عينة أخرى جمعت من اشخاص اصحاء استخدمت كمجاميع سيطرة.

تم عمل بعض التحاليل الروتينية لانزيمات الكبد لكافة الافراد موضوع الدراسة والتي تضمنت كل من و الألانين اسبارتيت وألالانين ترانسفيريز وأيضا تم قياس بعض معايير وظائف الكلى وهما يوريا الدم والكرياتينين لكل فرد من افراد الدراسة. ولوحظ إن نسبة حدوث مرض سرطان الرئة والمثانة في الذكور اعلى منه في الاناث (الذكور 73 ر72٪ ، 82 ر81٪ ،الاناث 18ر18٪،27ر27٪على التوالي).

لم تسجل الدراسة الحالية وجود فروقا معنوية في متوسط اعمار المرضى المصابين بالمرضين انفي الذكر مقارنة بمتوسط اعمار الاشخاص الاصحاء (مجاميع السيطرة)، بينما تم تسجيل مستويات عالية وفروقا ت معنوية في متوسط انزيمات الكبد والكلى (الألانين اسبارتيت وألالانين ترانسفيريز ويوريا الدم والكرياتينين) للاشخاص المرضى موضوع الدراسة بالمقارنة مع متوسط عينة الاشخاص الاصحاء.

الكلمات المفتاحية: السرطان،سرطان المثانة،سرطان الرئة،سيرم كرياتنين.