

Original research / Orijinal araştırma

Status of hepatitis C virus infection in lung cancer patients

Akciğer kanserli hastalarda hepatit C virüs enfeksiyonunun yeri

Sulhattin Arslan¹, Neslihan Taş, İbrahim Akkurt

Department of Chest Diseases, Cumhuriyet University of School of Medicine, 58140 Sivas

Abstract

Aim. The aim of this study was to evaluate the association between HCV and lung cancer. **Methods.** The study included 60 patients who admitted department of chest diseases our hospital for diagnosis of lung cancer. These patients were performed the blood test for HCV before to invasive procedures. **Results:** Of 60 patients included in this study, 58 (96.7%) were male and 2 (3.3%) were female. There was a statistically no significant difference between patients with Anti-HCV (+) and Anti-HCV (-) for gender and age ($p>0.05$). We found that anti-HCV antibodies were positive in 3 of 60 (5%) patients with lung cancer. Histologic types of lung cancer were 38.0 % squamous cell cancer, 30.0 % adenocarcinoma, 10.0% undifferentiated, and 21.7% small cell lung cancer. There was a statistically non-significant difference between patients with anti-HCV (+) and anti-HCV (-) for histological type of lung cancer ($p>0.05$). **Conclusions:** The development of lung cancer is a multifactorial process, including the environment factors, smoking, certain occupations, and genetic factors. HCV positivity alone may not be sufficient evidence for cause lung cancer. Therefore, there is a need studies that have large numbers of patients with HCV infection and lung cancer patients for this association.

Keywords: Lung cancer, hepatitis C virus

Özet

Amaç: Bu çalışmanın amacı akciğer kanseri ile Hepatit C virüsü arasındaki ilişkiyi incelemektir. **Yöntem:** Hastanemiz göğüs hastalıkları bölümüne akciğer kanseri ön

¹ **Corresponding author:**

Dr. Sulhattin Arslan, Göğüs Hastalıkları Anabilim Dalı, Cumhuriyet Üniversitesi Tıp Fakültesi, TR-58140 Sivas
Email: sulhattinaslan@mynet.com

tanısıyla başvuran 60 hasta çalışmaya alındı. Hastalara tanısal invaziv girişimler yapmadan önce hepatit C için kan örnekleri alındı. **Bulgular:** Çalışmaya dahil edilen 60 hastanın 58'i (%96.7) erkek, 2'si (%3.3) kadındı. Altmış hastanın 3'ü (%5) anti HCV (+) idi. Anti-HCV (+) ve anti-HCV (-) gruplar arasında yaş ve cinsiyet bakımından anlamlı bir fark yoktu ($p>0.05$). Akciğer kanserli hastaların histolojik tipi olarak %38.0'ı squamöz hücreli kanser, % 30.0'ı adenokarsinoma, %10.0'ı tiplendirilemeyen ve % 21.7'si küçük hücreli akciğer kanseri idi. Anti-HCV (+) ve anti-HCV (-) gruplar arasında akciğer kanserinin histolojik tipi bakımından anlamlı bir fark yoktu ($p>0.05$). **Sonuçlar:** HCV pozitifliği akciğer kanserinin nedeni olarak göstermek için yeterli kanıt olmayabilir. Akciğer kanserinin gelişmesinde sigara, bazı meslekler, çevresel ve genetik faktörleri içeren multifaktöryel etkenler rol oynamaktadır. Akciğer kanseri ile HCV enfeksiyonu arasındaki ilişki değerlendirmek için ileride daha geniş serili çalışmalara ihtiyaç vardır.

Anahtar sözcükler: Akciğer kanseri, hepatit C virüsü

Introduction

Hepatitis C virus (HCV) infection is an increasingly recognized as a major healthcare problem, affecting more than 170 million individuals worldwide (1-3). Although the majority of infected persons have few or no clinical symptoms, individuals with chronic HCV infection have an increased risk of developing cirrhosis, hepatocellular carcinoma, non-Hodgkin's lymphoma, pulmonary fibrosis, and oral carcinoma (4-9).

Lung cancer is one of the most important diseases in respiratory medicine with an increase in smoking addiction (10). Worldwide, lung cancer is responsible for 12.8% of cancer cases and 17.8% of cancer deaths (11). It only caused death of more than one million people in 2001 (10, 12).

Some specific viruses has been reported as having a role in 15% of human cancer cases (13). Viruses associated with human cancer have a role in oncogenesis. HCV has been shown to be associated in the pathogenesis of various cancers, including hepatocellular carcinoma, non-Hodgkin's lymphoma, oral cancer, malignant lymphoma, thyroid cancer (5, 6, 14). But the association of lung cancer and HCV infection is not well known.

The aim of this study was to evaluate the association between HCV and lung cancer.

Material and Methods

The study included 60 patients who admitted department of chest diseases our hospital for diagnosis of lung cancer. These patients were performed the blood test for HCV before to invasive procedures. A routine evaluation including a detailed medical history, physical examination, chest radiography, thorax CT, blood count and biochemistry was performed in all patients. Age, gender were recorded. Primary lung carcinoma was histologically subclassified. The cases were questioned stories for the blood transfusion, injection drug users, hepatitis, and the operation.

Serum samples for anti-HCV antibodies were detected by the 2nd generation Enzyme Linked Immunosorbent Assay (ELISA). The Chi-square tests were used for the statistical analyses. *P* value of less than 0.05 was accepted as significant.

Results

Of 60 patients included in this study, 58 (96.7%) were male and 2 (3.3%) were female. There was a statistically non-significant difference between patients with Anti-HCV (+) and Anti-HCV (-) for gender ($p>0.05$). Mean age of study population was 59 ± 5.0 with a range of 24–77. Mean age of Anti-HCV (+) population was 58 ± 8.2 and mean age of Anti-HCV (-) population was 59 ± 2.4 . There was a statistically non-significant difference between patients with Anti-HCV (+) and Anti-HCV (-) for age ($p>0.05$). Histologic types of lung cancer were 38.3 % squamous cell cancer, 30.0 % adenocarcinoma, 10.0% undifferentiated, and 21.7% small cell lung cancer. The histopathologic diagnosis of 3 patients who were for anti-HCV (+) was lung cancer (1 squamous cell cancer, 1 adenocarcinoma, and 1 small cell lung cancer) (Table 1). There was a statistically non-significant difference between patients with Anti-HCV (+) and Anti-HCV (-) for histologic type of lung cancer ($p>0.05$).

There was no history of blood transfusion, injection drug users, surgical intervention, and hepatitis in patients with anti-HCV (+). There was a statistically non-significant difference between patients with Anti-HCV (+) and Anti-HCV (-) for story of blood transfusion, injection drug users, surgical intervention, and hepatitis ($p>0.05$) (Table 1).

Table 1. Status of hepatitis C virus infection in lung cancer patients.

	Anti-HCV (+) (n=3)	Anti-HCV (-) (n=57)	Significance
Gender			
Female	0	2 (3.5%)	0.741
Male	3 (100%)	55 (96.5%)	
History of hepatitis	0	4 (7.0%)	0.646
History of transfusion	0	0	
Being a injecting drug user	0	0	
History of operation	0	4 (7.0%)	0.646
Histological type			
Squamous cell	1 (33.3%)	22 (38.6%)	0.820
Adenocarcinoma	1 (33.3%)	17 (29.8%)	
Small cell	1 (33.3%)	12 (21.1%)	
Undifferentiated	0	6 (10.5%)	

Discussion

Lung cancer has frequently been cited as an example of a malignancy that is solely determined by the environment and the risks associated with cigarette smoking and certain occupations, such as mining, asbestos exposure, shipbuilding, and genetic factors, are well established (15-20). Some specific viruses has been reported at 15% role of human cancer cases (13). HCV has been shown to be associated in the etiopathogenesis

of various malignites, including hepatocellular carcinoma, non-Hodgkin's lymphoma, oral cancer, malignant lymphoma, troid cancer (5,6,14). it is not well known the association of lung cancer and HCV infection.

We found that anti-HCV antibodies were positive in 3 of 60 patients with lung cancer. Our results significantly higher than that of the normal Turkish population which was reported to vary between 0.0% and 0.6 % (21). Uzun et al. reported that anti- HCV antibodies were positive in 6.7 % of their lung cancer patients (22). Balci at al reported that anti- HCV antibodies were positive in 7 % of their lung cancer patients (23). In our study, anti-HCV antibodies were found to be positive in 5 % of our lung cancer patients.

HCV infection is recognized as the most common blood-borne infection in injection drug users. HCV prevalence can reach 30% to 60% within a few years of its first appearance in a population of injection drug users and achieve greater than 90% in a mature epidemic (24-28). In this study, there was no history of injection drug users in patients with anti-HCV (+) and anti-HCV (-).

The association of blood transfusion and HCV infection is known. Dolar et al reported that anti- HCV antibodies were positive in 21 % of their story of multiple transfüsiön patients (29). Balci at al reported that anti- HCV antibodies were positive in 4.5 % of their story of blood transfusion patiens (23). In this study, there was no history of blood transfusion in patients with anti-HCV (+) and anti-HCV (-).

Some publications, it is suggested that patients with HIV infection may be at risk for developing adenocancer of the lung (30,31). But it is not well known the association of cytopatoogic type of lung cancer and HCV infection. In study of Uzun et al, among 3 HCV associated lung cancer patients, adenocancer was detected in one, adenosquamous cancer in one and squamous cell cancer in the third patient (22). In our study, among 3 HCV associated lung cancer patients, adenocancer was detected in one, small cell cancer in one and squamous cell cancer in the two patient.

In conclusion, the development of lung cancer is a multifactorial process, including the environment factors, smoking, certain occupations, and genetic factors. HCV positivity alone may not be sufficient evidence for cause lung cancer. Therefore, There is a need studies that have large numbers of patients with HCV infection and lung cancer patients for this association.

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