UDK 616.24-006-085 / Ser J Exp Clin Res 2008; 9 (4): 137 – 142

CHROMOGRANIN A TISSUE EXPRESSION AS A PROGNOSTIC FACTOR IN ADVANCED NON SMALL CELL LUNG CANCER

Marina Petrovic[1], Zorica Lazic[1], Ivan Cekerevac[1], Vojislav Cupurdija[1] and Dragana Jovanovic[2]
[1]Center for pulmonary disease, Clinical Center of Kragujevac, Kragujevac, Serbia
[2]Institute for pulmonary disease and TB, Clinical Center of Serbia, Belgrade, Serbia

TKIVNA EKSPRESIJA HROMOGRANINA A KAO PROGNOSTIČKI FAKTOR KOD ODMAKLOG NESITNOĆELIJSKOG KARCINOMA PLUĆA

Marina Petrović[1], Zorica Lazić[1], Ivan Čekerevac[1], Vojislav Ćupurdija[1] i Dragana Jovanović[2]
[1]Centar za plućne bolesti, Klinički Centar Kragujevac, Kragujevac, Srbija
[2]Institut za plućne bolesti i tuberkulozu, Klinički Centar Srbija, Beograd, Srbija

Received / Primljen: 17. 09. 2008. Accepted / Prihvaćen: 24. 12. 2008.

ABSTRACT

To determine the frequency of chromogranin A (CgA) and influence on survival of treated patients with advanced non small cell lung cancer (NSCLC). This study included 236 patients with histological diagnosis of advanced NSCLC (III and IV disease stage). Combined chemotherapy and radiotherapy protocol was used in III stage of disease (without pleural effusion) where as chemotherapy was used in III stage (with pleural effusion) as well as in IV stage of disease. Immunohistochemical analysis of CgA tissue expression was determined in tissue assays using antibodies to CgA. The overall survival of patients was assessed in one year and two years follow – up period. Of 236 eligible patients, 36 (15,25 %) had CgA expression. Squamous cell lung carcinomas had the least frequency of CgA tissue expression (8,7%). The 1-year and 2-year survival rates were 64% and 27% in group of patients with CgA expression compared to 32% and 6% in group without CgA expression (log-rank test:$p<0.001$). The median survival time in group of patients with and without positive CgA expression was 15.7 vs 12.3 months, respectively. One year survival rate was higher in NSCLC patients with more than 50% of CgA positive cancer cells (log-rank test: $p<0.001$).

Key words: non small cell lung cancer, neuroendocrine expression, chromogranin A, frequency, survival

SAŽETAK:

Ispitivana je učestalost hromogranina A (CgA) i njegov uticaj na preživljavanje kod lečenih bolesnika sa odmaklim nesitnoćelijskim karcinomom pluća. U studiju je uključeno 236 bolesnika sa histološkom dijagnozom NSCLC (III i IV stadijum bolesti). Kombinovana hemio i radioterapija bila je uključena u III stadijumu bolesti (bez pleuralnog izliva), a samo hemioterapija u III (sa pleuralnim izlivom) i IV stadijumu bolesti. Za imunohistohemijsku analizu tkivne ekspresije hromogranina A korišćena su mišja, monoklonalna antitela na CgA. Preživljavanje pacijenata praćeno je u jednogodišnjem i dvogodi{njem periodu. Od ukupno 236 ispitivanih pacijenata, 36 (15,25%) imalo je ekspresiju CgA. Najmanju učestalost tkivne ekspresije CgA (8,7%) imao je skvamocelularni ksarcinom pluća. Jednogodišnje i dvogodišnje preživljavanje bilo je 64% i 27% u grupi pacijenata sa ekspresijom CgA u poređenju sa 32% i 5 % u grupi bez ekspresije CgA ((log-rank test:$p<0.001$). Srednje vreme preživljavanja u grupi pacijenata sa i bez ekspresije CgA bilo je 15,7 odnosno 12,3 meseca. Jednogodišnje preživljavanje bilo je veće u grupi pacijenata sa više od 50% pozitivnih CgA tumorskih ćelija (log-rank test: $p<0.001$).

Ključne reči: nesitnoćelijski karcinom pluća, neuroendokrina ekspresija, hromogranin A, učestalost, preživljavanje

1. INTRODUCTION

Lung cancer is the leading cause of cancer death in the world. Non-small cell lung carcinoma (NSCLC) accounts for about 80% of all lung cancers. A high level of chemotherapy and radiotherapy resistence is described in non small cell lung cancer but 5-year overall survival rate was only 14% (1). Differing survival outcomes among patients within a stage suggests the existence of other tumor factors affecting prognosis (2). In the past two decades there have been substantial changes in concepts regarding the nature of lung tumors showing neuroendocrine (NE) differentiation (3). Immunohistochemistry (IHC) is the most practical method of assessing protein expression changes in histopathology. IHC not only provides a semiquantitative assessment of protein abundance but also defines the cellular localisation of expression. These considerations have led to the extensive use of IHC in studies on prognostic markers for tumors (2).

IHC studies indicated that NE features are expressed by 10-30% of ordinary NSCLC (4, 5, 6) especially adenocarcinomas, large cell carcinomas and squamous cell carcinomas, all traditionally considered of non-

Correspondance to Petrović Marina; Neznanog Junaka 3/23, 34 000 Kragujevac Serbia; Phone: + 381 34 304055,
Mobile: + 381 64 132 83 89, Fax: +381 34 370259; E-mail: drmarinapetrovic@yahoo.com