



Relationship between serum leptin levels and non-small cell lung carcinoma: a meta-analysis

J. Du*, J.C. Han*, Y.J. Zhang, G.B. Qi, Y. Zhang and H.B. Li

Department of Respiration, Huaihe Hospital of Henan University, Kaifeng, China

*These authors contributed equally to this study.

Corresponding author: J.C. Han

E-mail: hanjichang1231@163.com

Genet. Mol. Res. 14 (4): 13699-13708 (2015)

Received June 4, 2015

Accepted August 18, 2015

Published October 28, 2015

DOI <http://dx.doi.org/10.4238/2015.October.28.32>

ABSTRACT. In this study, we analyzed the association between serum leptin levels and non-small cell lung carcinoma (NSCLC). By examining English and Chinese databases, we identified potential relevant studies for statistical analysis. Human-associated case-control studies evaluating the association between serum leptin levels and NSCLC according to the random-effect model were retrieved and extracted data were statistically analyzed. We identified 7 case-control studies evaluating the correlation between serum leptin levels and NSCLC, which included 705 subjects (390 NSCLC patients and 315 healthy participants). Negative associations were investigated between serum leptin levels and NSCLC [standardized mean difference (SMD) = 0.96, 95% confidence interval (CI) = 0.13-1.79, $P = 0.023$]. Ethnicity-stratified analysis revealed there was no elevated leptin serum levels in NSCLC development in both Asians (SMD = 0.34, 95%CI = -0.10-0.79, $P = 0.132$) and Caucasians (SMD = 1.42, 95%CI = -0.09-2.93, $P = 0.064$). Sample size-stratified analysis of the association between serum leptin levels and NSCLC were found in studies of small sample size (SMD = 0.73, 95%CI = 0.04-1.41, $P = 0.038$), but not in studies of large sample size (SMD = 1.24, 95%CI = -0.52-3.01, $P = 0.166$). In the method-

stratified subgroup analysis, serum leptin level was not correlated with NSCLC using a immunoradiometric assay method (SMD = 0.82, 95%CI = -1.38-3.03, P = 0.465). Determining the levels of the blood-based marker leptin may provide predictive information for NSCLC diagnosis.

Key words: Blood test; Leptin; Meta-analysis; Serum levels; Non-small cell lung carcinoma; Standardized mean differences