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Letter to the Editor

Comment on "Correlation of CT indicators of NSCLC and pathological features and the expression level of p53 and c-myc"

Dear Editor,

Lung cancer is the leading cause of cancer-related death worldwide, being responsible for quarter of all deaths. The five-year survival rate of this cancer is only 17%[1,2]. Non-small cell lung cancer (NSCLC) represents the majority part of lung cancer diagnosis (about 80%), and most of these are in locally advanced form, half of which unresectable[3]. The clinical outcome of lung cancer depends on patient and tumor-related characteristics (i.e. gender, age, performance status, TNM stage, tumor grade, and molecular tumor profiling)[4]. Therefore, the different role of these prognostic factors makes difficult to properly define the patient prognosis and the therapeutic strategy. In a systematic review, Brundage et al[5] analyzed 887 publications and identified more than 150 possible prognostic or predictive factors. In the recently published paper by Li et al[6], the authors analyzed the relationship between radiological and pathological features of these tumors with radiomics. Radiomics aims to extract a large amount of quantitative information from medical images using data-characterization algorithms and it is gaining importance in the more advanced cancer research. Radiomics represents the ideal bridge between medical imaging and pathology, to personalize medicine for the patients and predicting survival time of lung cancer[7]. In this paper, for the first time, the authors focus on the prognostic role of p53 and c-Myc in non-small cell lung cancer. They investigated the correlation between computed tomography (CT) signs and pathological features, and concluded that CT scan combined with the detection of p53 and c-Myc expressions might improve the diagnosis of lymphnode metastasis and clinical staging in patients with NSCLC. Specifically, the positive rates of p53 and c-Myc proteins were correlated with tumor diameter, speculation, deep lobulation signs and lymph node metastasis. The importance of the histology within NSCLC was demonstrated, and the molecular profiling was shown to be a milestone for a tailored choice of therapy[8]. At presentation 70% of all patients are affected by advanced disease and are, therefore, potential candidates for systemic treatment[9]. However, from Li et al[6] study two considerations can be done. Firstly, in recent years, medicine needs more knowledge on individual characteristics of individual patient. For this reason precision medicine promotes the molecular characterization of the tumor with genomic approaches, which requires tissue extraction usually obtained via biopsy. The second consideration is that lung cancer predominantly affects older populations. In fact a population-based study from the Netherlands showed that the prevalence of comorbidity was 49% in those younger than 70 years and 69% for those older than this[10]. Many reports in the literature highlight that, due to age-related decline in cardiopulmonary reserves and frequent presence of co-morbid conditions, procedural safety is the most critical issue in any elderly patient undergoing both trans-bronchial or CT assisted biopsy. It must also be considered that a bronchoscopy can be associated with discomfort and they can be rejected by the patient, especially the elderly, because are considered excessively invasive. Furthermore, the biopsy must be adequate in terms of quantity of tissue to satisfy the diagnostic need and sometimes it is necessary to perform a re-biopsy. In contrast to biopsies, medical imaging is performed routinely, usually noninvasive, and could, in the future, provides information about the entire characteristic of tumor. The main finding of this study is that adds further elements on the use of radiomics in NSCLC by identifying the positive rates of p53 and c-Myc proteins correlated with tumor diameter, spiculation and deep lobulation signs and lymph node metastasis. In a broader sense, this study, allows a further step forward in diagnostics, using a method that, if validated, will provide irreplaceable information in patients who are not biopsied by age,

Corresponding Author: Giuseppe Parisi, MD; e-mail: giuseppe.parisi@asuiud.sanita.fvg.it

clinical conditions or rejection. Although to date biopsy is still unsustainable, in the future radiomics could complement (or replace) the same in these categories of patients. It's important to support and encourage studies in this area, because even if currently, radiomics lacks standardized evaluation and the complex relationships of radiomics, clinical factors, and tumor biology are largely unknown, its clinical relevance is in the rapid growth and if the data will be confirmed, in the future it could become a fundamental element of clinical practice.

Conflict of interest

The authors declare no conflicts of interest.

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G. Parisi, T. Ceschia, M. Trovò

Department of Radiation Oncology, Azienda Sanitaria Universitaria Integrata UD, Udine, Italy