



## THE LIMITATIONS OF MAINTENANCE THERAPY WITH PEMETREXED IN THE TREATMENT OF ADVANCED NON-SMALL-CELL LUNG CANCER PATIENTS

LOVRIĆ T.<sup>1</sup>, Hećimović A.<sup>1</sup>, Janković Makek M.<sup>1,2</sup>, Džubur F.<sup>1,2</sup>, Mihelčić Korte D.<sup>1</sup>, Vukić Dugac A.<sup>1,2</sup>, Pavliša G.<sup>1,2</sup>, Žuljević E.<sup>1</sup>, Purić H.<sup>1</sup>, Lulić F.<sup>1</sup>, Redžepi G.<sup>1</sup>, Krpina K.<sup>1</sup>, Jakopović M.<sup>1,2</sup>, Samaržija M.<sup>1,2</sup>

<sup>1</sup> University Hospital Center Zagreb, Zagreb, Croatia  
*Department for Respiratory Diseases Jordanovac*

<sup>2</sup> University of Zagreb, Zagreb, Croatia  
*School of Medicine*

**Objective:** Introduction: Non-small cell lung cancer (NSCLC) is the most frequent type of lung cancer with approximately 80% to 85% of all cases. Majority of patients presents with advanced stage disease at diagnosis. Chemotherapy with platinum doublets should be considered in all stage IV NSCLC patients without an actionable oncogenic driver. Decision-making about maintenance therapy must take into account histology, residual toxicity after first-line chemotherapy, response to platinum doublet, performance status and patient preference. "Continuation maintenance" and "switch maintenance" therapies refer to the maintained use of an agent included in first-line treatment or the introduction of a new agent after four cycles of platinum-based chemotherapy. Case report: a 60-year-old male with a past medical history of left foot melanoma presented to our Clinic in September 2015. He is an ex-smoker (54 pack years). In October 2014 left lower lobectomy was performed due to lung adenocarcinoma (stage IIB - T3N0M0, ALK and EGFR negative) following adjuvant chemotherapy (etoposide/ cisplatin 4 cycles). In July 2015 relapse of disease was confirmed so middle lobe resection was performed after 2 cycles of neoadjuvant chemotherapy paclitaxel with carboplatin and then followed by 4 cycles of adjuvant chemotherapy after surgical resection. In April 2017 radiology finding showed new bilateral lung infiltrate followed by clinical deterioration and respiratory insufficiency. Transbronchial lung biopsy confirmed

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metastatic lung adenocarcinoma. At this point treatment with pemetrexed as mono therapy was started. After two cycles there was significant regression of metastases and clinical improvement. In the upcoming months we monitored a slight increase of his serum creatinine (his initial value was 102  $\mu\text{mol/L}$ ). In April 2018 his glomerular filtration rate (GFR) started to decrease (his initial value was 68  $\text{mL/min/1,73m}^2$ ) so dose was reduced. In November 2018, after 28 cycle of pemetrexed, we stopped treatment due to renal damage (value of serum creatinine was 196  $\mu\text{mol/L}$ , GFR 32  $\text{mL/min/1,73m}^2$ ). On last reevaluation in March 2019 there were no signs of disease progression of and the creatinine level remained elevated, but stable.

Conclusions: Pemetrexed maintenance therapy improves survival of patients but side effects can limit the use of it. In literature is described that the renal side effects occur in 1% to 5% of all cases. Physicians need to estimate the benefits of prolonged therapy for the patients in comparison with possible side effects and quality of their life.

E-mail: [tea.lovric@yahoo.com](mailto:tea.lovric@yahoo.com)