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**Title:** Bevacizumab shows survival benefit for non-small lung cancer patients who received subsequent pemetrexed treatment but not had a therapeutic effect in clinical practice

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**Body:** [Background] Bevacizumab (BEV), a humanized monoclonal antibody against vascular endothelial growth factor, is one of molecular targeting agents for non-small lung cancer (NSCLC). The aim of this study is to evaluate the efficacy of BEV in clinical practice. [Methods] We retrospectively investigated the clinicopathological characteristics of 26 NSCLC patients who had undergone BEV therapy in Saitama Medical University International Medical Center and Saitama Medical University Hospital. [Results] The patients had a median age of 64 years (range, 33 to 75 years), and 19 males and current smokers. Epidermal growth factor receptor gene mutations were found in 6 patients (23%). Combined with BEV, each half of 26 patients received the chemotherapeutic regimen of either carboplatin/paclitaxel or carboplatin/pemetrexed. Objective response rate was 54% and disease control rate was 96%, and median progression free survival and overall survival were 100 days and 202 days, respectively. Adverse events included 4% of arrhythmia, 27% of hypertension, 8% of lower gastrointestinal bleeding, 19% of nasal bleeding, and 23% of proteinuria. Using Kaplan-Meier survival curves and logrank tests, therapeutic response influenced neither progression free survival nor overall survival, whereas longer overall survival was observed in NSCLC patients treated with pemetrexed-containing chemotherapy after failure of BEV. [Conclusion] Therapeutic response to BEV does not predict survival benefit of BEV-treated NSCLC patients. Meanwhile, pemetrexed may be a novel therapeutic option for NSCLC patients who have failed BEV treatment.