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Title: Prognostic factors analysis of patients with acute exacerbation of idiopathic interstitial pneumonias treated by polymyxin B hemoperfusion

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Body: Background: Acute exacerbations of idiopathic interstitial pneumonias (AE-IIPs) are episodes of acute respiratory worsening with high mortality. Direct hemoperfusion with polymyxin B-immobilized fiber column (PMX-DHP), which was established in Japan for treatment of sepsis, has been shown to improve the respiratory status of patients with ARDS. Recent reports have suggested beneficial effects of PMX-DHP on oxygenation in AE-IIPs as well. Here we aimed to investigate the outcome and prognostic factors in patients with AE-IIPs treated by PMX-DHP. Methods: We retrospectively compared 23 AE-IIP patients treated by steroid pulse therapy and PMX-DHP (PMX-DHP group) with 16 AE-IIP patients by steroid pulse therapy (control group). PMX-DHP was conducted once daily for 6 hours, 2 successive days. Results: The 90-day survival rate was significantly higher in PMX-DHP group (52.2%) than in control group (18.8%). The median survival time was 192 days for PMX-DHP group vs 21.5 days for control group (log rank test P value = 0.0134). Univariate analysis showed that age, duration of AE-IIP till PMX-DHP and P/F ratio were significant predictors of survival. Using multivariate analysis age (p=0.006,HR=19.65) and the duration (p=0.004,HR=22.72) were found to be independent prognostic factors. Conclusion: This case-control study suggests that PMX-DHP therapy improves survival in AE-IIP patients. The prognostic potential of age and duration of AE-IIP may be useful for the selection of patients who benefit from PMX-DHP.