Effect of the new silicon-based agent on the symptoms of interstitial pneumonitis

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Interstitial pneumonia (IP) is a collective term for diseases whose main lesion is fibrosis of the pulmonary interstitium, and the prognosis associated with acute exacerbation of these conditions is often poor. Therapeutic agents are limited to steroids, immunosuppressants, and antifibrotic drugs, which and have many side effects; therefore, the development of new therapeutic agents is required. Because oxidative stress contributes to lung fibrosis in IP, optimal antioxidants may be effective for the treatment of IP. Silicon (Si)-based agents, when administered orally, can continuously generate a large amount of antioxidant hydrogen in the intestinal tract. In this study, we investigated the effect of our Si-based agent on methotrexate-induced IP, using the IP mouse models. Pathological analysis revealed that interstitial hypertrophy was more significantly alleviated in the Si-

based agent-treated group than in the untreated group (decreased by about 22%; $P < 0.01$). Moreover, additional morphological analysis demonstrated that infiltration of immune cells and fibrosis in the lungs were significantly inhibited by treatment with the Si-based agent. Furthermore, Si-based agent reduced oxidative stress associated with IP by increasing blood antioxidant activity. (increased by about 43%; $P < 0.001$). Taken together, these results suggest that Si-based agents can be effective therapeutic agents for IP.