Rationale: Adipose-derived stem cells are detectable in the parenchyma and large airways of lungs, and associated with reduced inflammatory infiltration and lung cell death. Objectives: We hypothesized that adipose stem cells would ameliorate lung fibrosis induced repetitive intratracheal bleomycin instillation. Methods: Male 8-week-old C57BL/6J mice (control group n=10, bleomycin only group n=20, bleomycin plus adipose stem cell group n=10) were used. Eighth biweekly dose of bleomycin was injected intratracheally via an intubation procedure at dose of 0.04 units in a total volume of 100 µl of sterile saline. Human ASC (6×10^5 cells) were administered systemically via intraperitoneal injection every other week during the last 2 months of the 4- month bleomycin exposure. Lungs were evaluated for fibrosis and collagen content. Bronchoalveolar lavage (BAL) was performed for cell counts. Measurements and Main Results: Evaluation of lung histology from mice receiving repetitive dosing revealed patchy distributive lung fibrosis and extracellular matrix deposition based on trichrome blue collagen staining. Furthermore, alveolar ducts were increased in size and proliferated with several Clara cells and cuboidal epithelial cells hyperplasia with peri-alveolar ducts inflammatory infiltrations. These finding was ameliorated by adipose stem cells administration. Conclusions: These results suggest a useful therapeutic effect of adipose stem cells on pulmonary fibrosis induced by repetitive bleomycin administration. Further studies are needed to evaluate.
the efficacy of adipose stem cells for the treatment of human IPF.