THE POTENTIAL OF MESENCHYMAL STEM CELL THERAPY FOR IDIOPATHIC PULMONARY FIBROSIS

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Idiopathic pulmonary fibrosis (IPF) is a devastating condition with poor prognosis and median survival of 2-3 years. No satisfactory treatment is currently available and thus searching for novel therapies is needed. IPF pathogenesis comprise, inter alia, pro-fibrotic and pro-inflammatory cytokine activity and exhaustion of epithelial stem cells which provides rationale for mesenchymal stem cell (MSC)-based treatment. MSC modulate cytokine profile, home to the site of injury and aid to epithelial tissue repair. Preclinical data based on animal models of lung fibrosis support the hypothesis of MSC ameliorating lung fibrotic changes. Currently there are three ongoing and one completed clinical study evaluating MSC safety and efficacy in treating IPF. The trials include different stem cell sources derived from autologous as well as allogenic donors, and intravenous or endobronchial administration route. The first results indicate that MSC therapy is safe and well-tolerated, however no pronounced clinical results were noted. This review highlights recent advances on stem cell-based treatment of IPF and its forthcoming prospects.