Samah M Elaidy, J Pulm Respir Med 2017, 7:2 (Suppl)
http://dx.doi.org/10.4172/2161-105X-C1-021

Serotonin receptor subtype-2 and idiopathic pulmonary fibrosis

Samah M Elaidy
Suez Canal University, Egypt

Augmentation of lung serotonin (5-hydroxytryptamine, 5-HT) content is evident during development of pulmonary fibrosis with the implication of highly expressed metabotropic 5-HT2 receptors in the pathogenesis, ending in various mitogenic and profibrotic effects. In the fibrotic lung microenvironment, three 5-HT2 receptors subtypes- A, B, C- are recognized. The 5-HT2A and 5-HT2B receptors are chiefly confined to fibroblasts, alveolar epithelial cells, with an augmented allocation of 5-HT2C receptors into alveolar macrophages. These unique allocations allow multiple intersecting serotonergic pathways, which modulate different fibro-proliferative and angiogenic key regulators in fibrotic lung microenvironment. Recently in lung fibrosis, 5-HT2C has been found to play a major phenotypical alternating role on alveolar macrophage with subsequent progression into inflammatory-fibrotic cascades. In several recent studies, selective specified pharmacological antagonism of 5-HT2A and/or 2B and/or 2C receptors was found to attenuate bleomycin-induced lung injury and fibrosis through improving lung functions, decreasing lung edema and down regulating several collagen deposition mediators, as tumor necrosis factor-α (TNF-α), transforming growth factor-β1 (TGF-β1), connective tissue growth factors (CTGF), plasminogen activator inhibitor-1 (PAI-1), monocyte chemo attractant protein-1 (MAP-1) and vascular endothelial growth factor (VEGF). In conclusion, blockade of 5-HT2A, 2B, and 2C receptors is considered a promising molecular target for pharmacological intervention in fibro-proliferative interstitial lung diseases. However, further studies are needed to explore in depth the complexity of roles played by different 5-HT2 receptor subtypes and the therapeutic implications of antagonizing their effects in idiopathic pulmonary fibrosis.

Biography

Samah M Elaidy is currently a Lecturer of Clinical Pharmacology, School of Medicine, Suez Canal University (SCU), Egypt. She is a Member of Educational Curricula and Medical Research Committees, in addition to National Authority for Quality Assurance and Accreditation of Education Committee at Faculty of Medicine, SCU and also a Member of the Egyptian Society of Pharmacology and Experimental Therapeutics. She holds MD and PhD and certificates in research methodology of grant writing and in human resource development in health management and leadership and awarded certificate of appreciation for international publications (SCU, 2012-2013). Her areas of expertise are pulmonary, gastrointestinal, renal, cancer and nanotechnology pharmacological researches with published articles and works in progress project.

semsemologist@yahoo.com

Notes: