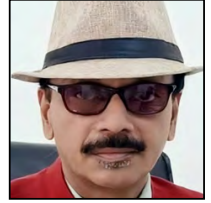


Role of lyophilized platelet-rich plasma in lung disorders

Pradeep V Mahajan

StemRx Bioscience Solutions Pvt. Ltd., India



Abstract

The global burden of lung diseases is increasing steadily, with developed countries showing increasing trends in tobacco- and pollution-associated lung dysfunction, while developing countries are grappling with infectious conditions such as tuberculosis. Irrespective of the type of lung disease obstructive, circulatory, malignant, infectious, etc. The pathogenesis ultimately leads to scarring of lung tissue, structural changes, loss of cells, and circulatory disturbances in the lungs, all of which have long-term effects on the quality of life of the affected individual. Therefore, the need of the hour is not just strategies that help control progression of the disease, but also those that help in regeneration of damaged tissues. Regenerative medicine and cell-based therapies are being researched in the management of several acute and chronic conditions. One such therapeutic modality is the use of platelet concentrates. Platelets have a complex biology that has been shown to play an important role in inflammation and tissue repair, in addition to blood clotting. The various growth factors in platelet concentrate play roles in chemotaxis, cell differentiation, extracellular matrix remodelling, angiogenesis, and tissue repair among other functions. In context of lung diseases, platelet concentrates (particularly platelet-rich plasma [PRP]) can reduce alveolar as well as systemic inflammation, thereby preventing progression of the infection. PRP has been shown to decrease the expression and production of pro-inflammatory cytokines, improve blood supply, enhance pulmonary oxygenation, reduce fibrosis, among other effects, all of which aid in regeneration of cells and tissues in lung diseases. Lyophilization of PRP is a consistent method for product standardization and fabrication of an off-the-shelf product with improved stability, which is ready for future uses. In this presentation, I will explain the advantages of PRP in pulmonary regeneration and highlight the advantages of lyophilized PRP in the management of various lung disorders including COVID-19.

Biography

Pradeep V Mahajan completed his masters in General Surgery from Marathwada University, Maharashtra and went on to pursue Diploma in Urology at the University of Vienna, Austria. In a career changing move, after three decades of being a successful general and uro surgeon, he started his brainchild - StemRx Bioscience Solutions Pvt. Ltd. in the year 2011. This was to focus on in-depth research in the field of Regenerative Medicine and Cell Based Therapy which he believes is the solution to address the limitations of conventional therapeutic modalities. To this effect, he underwent and continues to undergo intensive training in the United States. He has devised personalized treatment protocols in cell-based therapy for more than 75 health conditions.



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