Emerging landscape in the management of acute exacerbations of Chronic Obstructive Pulmonary Disease (COPD): Role of Pidotimod

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Abstract

The burden of chronic obstructive pulmonary disease (COPD) is estimated to be amongst the highest in the world [1]. A recent study indicates that the number of COPD cases in India increased from 28•1 million in 1990 to 55•3 million in 2016 [2]. The correlation between immune dysfunction and chronic respiratory diseases such as COPD is well established. COPD is characterized by chronic inflammation of the airway which compromises innate as well as adaptive immune responses. This predisposes the patients to infective exacerbations of COPD [3]. Addition of an immunostimulant agent in the treatment of COPD and AECOPD can be very effective. Pidotimod is a synthetic dipeptide molecule having immunostimulant properties and exerting effects on both innate and adaptive immunity [3]. Pidotimod induces dendritic cells (DCs) maturation, promotes phagocytosis, upregulates expression of toll-like receptors-2 (TLR-2), stimulates T cell proliferation towards Th1 phenotype and enhances function of natural killer (NK) cells [3]. As per one recent study in immunology, functional disorder of Th1/Th2 cells and immune hypofunction is clearly linked to development of recurrent respiratory tract infections (RRTIs). Pidotimod has been extensively studied in acute exacerbations of chronic obstructive pulmonary disease (AECOPD) in adults. Robust clinical evidence indicates that Pidotimod, when added to the standard of care reduces the number of exacerbations of COPD, shortens recovery time and reduces duration of clinical symptoms of AECOPD as compared to standard of care alone. Various studies conducted to date have demonstrated excellent safety profile of this particluar molecule [3]. A recent study by Goyal A concluded that Pidotimod is effective, well tolerated and cost effective for prevention and treatment of acute exacerbations of COPD [4]. Hence, addition of an immunostimulant such as Pidotimod in management of these conditions can be very effective. To conclude, Pidotimod is a safe, well tolerated and effective therapeutic option in the treatment and prevention of AECOPD.

Pidotimod is a synthetic, oral, non-specific Immunostimulant which stimulates various components of the immune system, including regulating the cell - mediated immune response. Pharmacokinetic study showed that the drug was absorbed rapidly by oral administration. The bio-availability of human when taken orally, was 45% and the half-life was 4 hours. It acts as an Immunostimulant, Immunomodulator and Immunoactivator.

Animal and clinical trials have shown that although Pidotimod has no direct anti-bacterial and anti-viral activity, it can play a significant role in the treatment of Bacterial and Viral infections by promoting the immune function of the body.

Studies have shown that the drug can stimulate non-specific natural immunity by improving ciliary function, increasing Dendritic cell maturity, increasing the activity of Natural Killer { NK} cells, increasing Phagocytosis and Chemotaxis, improving the Th1/ Th2 balance, upregulating TLR-2 and significantly improving the level of IgG and IgA in the body. It can also regulate the function of T- lymphocytes and B-lymphocytes, regulate the generation of antibodies, increase the chemotaxis, phagocytosis and killing of Macrophages, enhance the immune function of the body, and achieve the purpose of treating Respiratory tract infection.

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The dose of Pidotimod in adults is 800 mg twice daily for 2 weeks, followed by 800 mg once daily for 45 days, taken 1 hour before breakfast. In children, the dose is 400mg twice daily for 2 weeks followed by 400 mg once daily for 45 days. There are no significant side-effects, except mild nausea. It is a relatively safe drug, which is in use for a long time. It is available in oral tablets and syrup. Hence, Pidotimod can be safely given

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