

## Inhaled Iloprost

### A Viewpoint by Nazzareno Galiè

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Primary pulmonary hypertension (PPH) is a severe disease characterised by a progressive increase of pulmonary vascular resistance leading to right ventricular failure and premature death. A reduced production of prostacyclin, a vasodilator, platelet inhibitor and antiproliferative substance produced by endothelial cells, has been demonstrated in both animal models and affected patients. Continuous intravenous administration of epoprostenol, a synthetic salt of prostacyclin, has been shown to improve symptoms and prognosis in patients with PPH. However, this form of treatment requires a complex delivery system and is associated with several adverse effects and potentially serious complications. Therefore, new prostacyclin analogues with different routes of administration have been tested in randomised controlled trials in patients with PPH.

Iloprost is a chemically stable prostacyclin analogue available for intravenous, oral and aerosol use. This last route of administration has the theoretical advantage of selectivity for the pulmonary vascular bed, thus, avoiding systemic adverse effects. The

first results on the effects of the acute administration of iloprost by inhalation in six patients with PPH were reported in 1996.<sup>[1]</sup> More recently, randomised and long-term studies have confirmed the efficacy of inhaled iloprost in improving exercise capacity, haemodynamics and time to clinical worsening in patients with PPH.

From the haemodynamic viewpoint a single inhalation of iloprost produces a reduction of 10–20% of mean pulmonary artery pressure that lasts for 60–120 minutes. The short duration of action requires frequent inhalations (6–12 times daily) to obtain a persistent effect in long-term administration. The elevated number of inhalations can be considered cumbersome by some patients. The main advantage of the inhalation route is the reduction of systemic adverse effects (headache, flushing) and the virtual absence of the phenomenon of tolerance.

Inhaled iloprost is a new and effective therapy to be included in the treatment strategy of patients with PPH. ▲

## Reference

1. Olschewski H, Walmrath D, Schermuly R, et al. Aerosolized prostacyclin and iloprost in severe pulmonary hypertension. *Ann Intern Med* 1996 May 1; 124 (9): 820-4