Pentoxifylline for hepatopulmonary syndrome after liver transplantation: case report

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Background: Hepatopulmonary syndrome (HPS) is characterized by abnormal arterial oxygenation caused by intrapulmonary vascular dilatations in the setting of liver disease. Even after liver transplantation (LT), recovery from HPS can be protracted. The pathogenesis of HPS is unclear. Several mediators, including tumor necrosis factor- α (TNF- α), nitric oxide, endothelin-1, and vascular endothelial growth factor, have been implicated. Pentoxifylline is a phosphodiesterase inhibitor with inhibitory effects on TNF- α and NO, and has been linked to improved oxygenation in HPS. Small uncontrolled trials have investigated the effect of pentoxifylline in patients with HPS who had *not* undergone LT. However, no trials have yet been conducted to investigate the benefit of pentoxifylline in aiding recovery from HPS post-LT.

Methods: We report a case of a 49-year-old man with residual HPS post-LT, who was treated with pentoxifylline and achieved marked improvement in oxygenation. Our patient was diagnosed with Child's B cirrhosis from chronic hepatitis C infection at the age of 44. While awaiting transplantation, he was diagnosed with severe HPS. He underwent a deceased donor LT at age 49.

Results: Preoperatively, his PaO₂ was 95 mmHg on 4 L/min supplemental oxygen via nasal prongs. Postoperatively, his requirements rose significantly—he required 100% inspired oxygen via a non-rebreather mask to maintain his SpO₂ at 92% and above. Pentoxifylline was started on postoperative day 6 and continued for 2 weeks. During this period, his oxygen requirements returned to his pre-operative levels, and by 2 months post-LT, he was no longer oxygen-dependent at rest. Pentoxifylline was well-tolerated by the patient. There were no deleterious effects on the liver graft and no apparent adverse drug interactions. While his improvement in oxygenation could entirely have been a consequence of his LT, the sequence of events suggests pentoxifylline may have had a role to play.

Conclusions: Pentoxifylline may hasten recovery in patients with residual HPS post-LT.

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