Study may explain low blood oxygen for cystic fibrosis patients with infected lungs

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Researchers have defined a new bodily process in mice that may explain why blood oxygen levels are lower for patients with cystic fibrosis when they get a lung infection.

"Infected areas of the lung are not as capable as healthy tissue at adding oxygen to the bloodstream, but no one has shown why this is the case," said Dr. Wolfgang Kuebler, a scientist in the Keenan Research Centre for Biomedical Science of St. Michael's Hospital. "We've shown that the protein produced by a gene known as CFTR is required to direct blood flow away from infected areas in the lung so that oxygen can reach the bloodstream."

In cystic fibrosis patients, the CFTR gene is mutated and doesn't work. Blood flowing to infected areas of the lung is not re-routed by the CFTR protein, resulting in impaired blood oxygenation.

Certain infections may inhibit the CFTR protein even in patients without cystic fibrosis.

"Our findings indicate that strategies aimed at restoring or activating the CFTR protein in patients with lung infection, particularly those with cystic fibrosis, might help improve blood oxygen levels and improve circulation," said Dr. Kuebler, who is also co-director of the Critical Illness and Injury Research Centre of St. Michael's.

The study was published in the journal *Proceedings of the National Academy of Sciences*.

Provided by St. Michael's Hospital