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ALTERNATIVE OXYGENATION STRATEGIES IN COVID PATIENTS

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Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) that causes coronavirus disease 2019 (COVID-19) involves the lungs leading to acute respiratory distress syndrome (ARDS). Lung involvement leads to reduced oxygenation of the tissues and hypoxia. Mechanical ventilation with positive pressure ventilation fails to improve oxygenation due to the fibrosis and thromboembolism in the lung impeding gas exchange and potentially damaging the lungs continuing the downward spiral of hypoxemia and multi-organ failure.

While extra-corporeal membrane oxygenation is known to improve oxygenation in covid patients, it is not widely practised due to financial and other constraints. Oxygen delivery to the blood stream by the dialysis fluid during continuous renal replacement therapy ex vivo has been done by Yoshihiro Tange and Shigenori Yoshitake.[1] Improved Arterial Blood Oxygenation Following Intravenous Infusion of Cold Supersaturated Dissolved Oxygen Solution has been done by Daniel J. Grady et al.[2] Oxygen Gas–Filled Microparticles Provide Intravenous Oxygen Delivery has been done by John N. Kheir.[3]

Hypothesis

Can the peritoneal membrane be used a dialysing membrane as it is done for peritoneal dialysis to improve oxygenation by injecting oxygen rich fluid?

Can the gastro-intestinal tract be used to improve oxygenation by ingesting oxygen rich fluid?

Can intravenous supersaturated dissolved oxygen solution be given to improve oxygenation?

Can Oxygen Gas–Filled Microparticles Provide Intravenous Oxygen Delivery?

Consequences of the hypothesis

If any or multiple methods can maintain oxygenation reducing the amount of mechanical ventilation, lung healing can be promoted and precious time can be bought to provide interventions to support other organs not only in covid patients but also in any condition leading to hypoxia and multi-organ failure.

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