

THE PRESENT ROLE OF INTERVENTIONAL LUNG ASSIST (ILA) IN CRITICAL CARE MEDICINE

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Objective

This brief review describes the present role of iLA in critical care medicine.

Study Design

Review.

Methods

The key technologies to perform pumpless extrapulmonary lung assist are the development of a lung assist device with low resistance to blood flow and without the need for full heparinization (Novalung®).

The authors report a pressure gradient of 15 cm H₂O or lower and a blood flow of 3 l/min across the Novalung® iLA device. This allows to use the Novalung® device without a mechanical blood pump at mean arterial pressure of about 75 mmHg considering the additional resistance of the cannula that are in series with the lung assist device and the central venous pressure that needs to be overcome. The system can provide complete CO₂ elimination at low blood flow. Oxygenation will depend on both the arterial blood pressure on cannula size determining shunt flow iLA therefore enables the dissociation of oxygenation and ventilation. The authors propose a number of medical indications:

Severe pneumonia, trauma, smoke gas inhalation, chemical warfare, combined chest and head injury, pulmonary fistula.

Contra indications:

CI < 3l/min/m², MAP < 70 mmHG, NYHA > 2, septic shock, HIT II, peripheral artery disease.

Commentary

The authors discuss protective ventilation strategies including HFOV and propose to assess complications in a larger trial. Another focus is the combination of iLA with lung protective ventilation strategies and weaning protocols.

