

SOUTHWESTERN NEWS

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LIQUID-FILLED LUNGS SAVING LIVES

DALLAS — May 5, 1995 — Filling the lungs with fluid when a patient has acute respiratory distress syndrome may not appear to make medical sense. But researchers at UT Southwestern Medical Center at Dallas are exploring the possibility that under the right conditions, partial liquid ventilation (PLV) may mean the difference between life and death.

During PLV treatment, the patient's lungs are partially filled with a liquid, called a perflurochemical (PFC), that may help heal the lung and promote the exchange of oxygen and carbon dioxide within the lung.

"The PFC, is intended to wash out the lung secretions and debris through the airway," explained Dr. Luis O. Toro-Figueroa. The assistant professor of pediatrics at UT Southwestern recently supervised the treatment of two children with chicken pox complicated by pneumonia and acute respiratory distress syndrome (ARDS) at Children's Medical Center of Dallas.

"We are studying the possibility that this may be effective therapy for ARDS," said Toro-Figueroa, who also is medical director of respiratory care at Children's.

Researchers at UT Southwestern and several medical centers nationwide are studying the use of the PFC known as LiquiVent™, which is being developed by Alliance Pharmaceutical Corp. of San Diego. It is in Phase I/II clinical trials and has been given a 'fast track' review status by the Food and Drug Administration. This expedited clinical

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review process was established by the FDA for products being developed to treat severely debilitating or chronic illnesses for which there is no known treatment. Children's is one of the sites evaluating LiquiVent, an oily substance that is twice as heavy as water and is odorless, colorless and spreads easily in the lung.

Some of the causes of ARDS are infection, shock, premature birth, inhalation of toxic substances and drowning. ARDS closes some of the alveoli, air sacs in the lung where gas is exchanged, and also causes the lung to fill with inflammatory fluid. The collapsed lung replaces the oxygen normally present in the alveoli with fluid, making it impossible for the patient to breathe.

Toro-Figueroa said ARDS is fatal in about half of all cases and there are about 200,000 cases of ARDS annually in the United States. "ARDS is responsible for approximately 10 percent of all pediatric intensive care unit admissions," he added.

The standard therapy for ARDS is to place the patient on a mechanical ventilator which moves oxygen into the lungs, keeping the alveoli open for proper gas exchange. Toro-Figueroa said mechanical ventilation is not without risk.

"ARDS patients require that oxygen be delivered at relatively high pressures and volumes. Long-term use of the high pressure ventilator can cause pressure and volume-related lung trauma, in which the lungs are distended and possibly could rupture. The hypothesis being tested in these studies is that PLV may prevent this type of lung injury."

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