**PULMONARY AND HEMODYNAMIC RESPONSES TO FRUCTOSE-1,6-DIPHOSPHATE (FDP) IN PATIENTS WITH ACUTE LUNG INJURY (ALI)**

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*Objective*: To investigate whether FDP has a salutary effect in man as reported in animals with ALI.

*Background*: Experimental data indicates that treatment with FDP significantly reduces lung injury caused by α-naphtylthiourea, sepsis and endotoxemia.

*Method*: We used a non-randomized design in which each patient served as his own control. Treatment with IV FDP 10% 150 mg/kg Q6H for an average of 18±2.9 infusions was given to 42 consecutive patients with ALI/ARDS resulting from complications of sepsis, trauma, aspiration, near drowning, smoke inhalation, and following heart and lung transplantations. FDP treatment was discontinued after substantial improvement of oxygenation and hemodynamics.

*Results*: Pulmonary function before (B) and after (A) FDP treatment is given below and expressed as meansSEM; \*P<0.001.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| PEEP-cmH2O | | O2% | | Pa02 mmHg | | PaO2/FiO2 Index | |
| B | A | B | A | B | A | B | A |
| 9.6 | 6.1\* | 62 | 42\* | 73 | 101\* | 130 | 260\* |
| 0.7 | 0.93 | 3.3 | 2.03 | 3.4 | 3.4 | 8.4 | 15.3 |

Pulmonary artery pressure and resistance declined following FDP treatment (P<0.001) and so did heart rate (P<0.001) while arterial pressure and cardiac output increased (P<0.001). At 45 days post treatment, 31 of the 42 patients were alive (74%).

*Conclusion*: As the study is non-randomized, no conclusion can be drawn on survival. The observed improvement in pulmonary function by FDP was most likely due to its known capabilities to curtail oxyradicals generation by neutrophils and suppress inflammatory cytokines expression. Hemodynamic improvement is attributed to the pharmacodynamic properties of FDP to enhance energy production from glycolysis in hypoxia.